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ADDRESS.

THE SURGICAL TREATMENT OF INTESTINAL TUBERCULOSIS.

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The title of this paper will probably appear somewhat strange and out of place to the general practitioner and the surgeons who have not kept fully abreast with the great advancements that have been made during the last decade in the diagnosis and surgical treatment of localized lesions of the intestinal tract. Our increased knowledge of the location, nature and clinical tendencies of accessible tubercular affections has opened a wide and fertile field for successful surgical intervention. There is hardly an organ in the body which when the seat of a localized tubercular process has not been exposed and subjected to direct treatment with a fair expectation of removing or limiting the further extension of the disease. The medical treatment of tuberculosis in its various forms at the present time is not much in advance of that of fifty years ago. The numerous specifics invented and vaunted in different parts of the world have all fallen by the wayside and the old-fashioned remedies are again taking their place. Leaving out the local measures we have to rely in the treatment of such cases largely on diet, change of climate and occupation, outdoor air and the administration of those remedies known to exercise a favorable influence in improving digestion, nutrition and assimilation, and thus indirectly antagonize the ravages of the disease.

Powerless as we remain today in the successful systemic treatment of tuberculosis, it is a source of gratification to know that great improvements have been made in the local treatment of accessible tubercular lesions. The intestinal canal is one of the last territories opened up for successful surgical invasion. All the work done in this department of surgery dates back but a few years. The results obtained by the surgical treatment of localized intestinal tuberculosis are such as to encourage further effort in this direction. The number of cases operated upon so far remains a small one, and it is my intention on this occasion to bring them to the attention of the profession of this country and to describe the different operative procedures which have been employed by different operators with the same aim in view, either to remove the diseased tissue, or to render the affected portion of the bowel accessible to direct treatment, or to place it in a more favorable condition for spontaneous healing of the tubercular ulcers.

This paper will deal largely with localized primary tuberculosis of the intestinal canal, with cases amenable to successful surgical treatment. Diffuse primary tuberculosis of the intestines remains, for the present, a surgical *noli me tangere*. Surgical intervention is also contraindicated in secondary intestinal tuberculosis in all cases in which the primary disease, usually pulmonary tuberculosis, is far advanced and constitutes in itself an imminent source of danger to life. There are, however, cases of primary intestinal tuberculosis in which timely radical measures prove successful in eliminating the disease permanently and in restoring normal intestinal digestion and absorption. The attention of the mass of the profession must be called to the necessity of a more careful and thorough examination of chronic inflammatory affections of the intestinal tract, for the purpose of making an early and correct diagnosis and with a view of selecting appropriate cases for timely surgical treatment. The internist and the surgeon must co-operate with each other in the future development of this, one of the most recent departments of the healing art.

I shall quote and describe the cases operated upon for intestinal tuberculosis under the headings of the different operative procedures:

1. *Abdominal section and iodofumigation.*—Every surgeon is familiar with the curative effects of abdominal section and drainage, with or without iodofumigation, in cases of peritoneal tuberculosis. The modus operandi of this method of treatment has never been fully and satisfactorily explained, but the fact remains that it has proved eminently successful in the majority of such cases. There is no doubt in my mind that the local application of iodoform adds to the therapeutic value of this method of treatment. In one of the cases which has recently come under the observation of the writer abdominal section and drainage were resorted to on two different occasions, but the tubercular hydrops returned. Tapping and the injection of from 7.4 to 15 c.c. of a 3 per cent. of iodoform-glycerin emulsion repeated six or eight times at intervals of from one to two weeks finally succeeded in effecting a cure, and the patient remains in perfect health, more than a year after the last tapping. Future observations will undoubtedly prove that peritoneal tuberculosis is more frequently caused by infection from primary intestinal lesions than has been heretofore supposed.

It is not strange that the same treatment should occasionally prove equally useful and efficient in certain cases of intestinal as in peritoneal tuberculosis. Nové-Josseraud ("Tubérculose localisée du cæcum traitée par la simple laparotomie," Société des Sciences Médicales de Lyon. *Lyon Médicale*, 1896, No. 22) made a laparotomy on a child 12 years old for a swelling the size of an adult's fist in the region of the cecum. The incision demonstrated the existence of extensive tuberculosis of the cecum and adjacent portions of the ileum and ascending colon. The affected parts were not interfered with, except that they were wiped gently

with iodoform gauze and dusted with a thin film of iodoform, and yet the operation was followed by a speedy and permanent recovery.

This method of treatment has a limited application in the treatment of intestinal tuberculosis when the disease is too extensive for more radical measures and no obstructive lesion is indicated by the symptoms or discovered at the time of operation. Iodofumigation and capillary drainage with iodoform gauze for a few days would seem to be indicated in such cases.

2. *Enteroplasty.*—Plastic operations are indicated in solitary circular strictures following the healing of a tubercular ulcer and constituting the cause of intestinal obstruction. In narrow circular strictures an operation similar to that devised by Heineke-Mikulicz for pyloric cicatricial stenosis will yield the most satisfactory operative and functional results. The stricture is divided on the convex side of the bowel and the incision carried sufficiently far into healthy tissues on each side of the stricture, in a direction parallel to the long axis of the bowel, and the visceral wound closed transversely by two rows of sutures of fine braided silk, thus restoring the lumen of the bowel to its normal size.

Péan (*Bulletin de l'Académie de Médecin*, Dec. 30, 1890) performed such an operation for cicatricial stenosis of the ileo-cecal valve, following the healing of a tubercular ulcer. He made the abdominal incision above and parallel to Poupart's ligament. The bowel was tied above and below the constriction with a rubber cord passed through a slit in the mesentery. The intestinal wall was incised at the level of and at each side of the strictured valve for a distance of three inches. After washing out the opened segment of the bowel with a 1 per cent. solution of carbolic acid, the cicatricial tissue was excised. This being done, the two extremities of the intestinal wound were brought together by means of forceps. The incision, which was first longitudinal, soon took the form of a lozenge, two sides of which were represented by the lips of the small intestine and the other two by those of the large intestine. Bringing the forceps nearer together the incision became transverse, and in this position the edges were sutured in the usual way. Catgut was used for the inner and silk for the outer row of suturing. The patient recovered and remained in good health at the time the report was made.

3. *Enterectomy.*—The most radical treatment of intestinal tuberculosis, in appropriate cases, is resection followed by circular suturing. Resection is indicated in isolated intestinal tuberculosis as long as the swelling is movable and the disease gives rise to symptoms of obstruction; if, however, the disease is no longer limited to the organ primarily affected, or if it is complicated by advanced pulmonary or general tuberculosis entero-anastomosis should take the place of a radical operation. Experience has shown that it is neither essential or even necessary to add to the gravity of the operation by attempts to remove the products of regional infection. After removal of the primary focus of infection the lymphatic tuberculosis usually comes to a standstill, although cases have been recorded in which later reinfections occurred from this source.

Diffuse glandular tuberculosis in such cases is beyond the reach of safe surgery. Caseous glands in the mesentery, corresponding with the portion of the intestine excised, should be removed by including the mesentery in the excision. So far excision has only been performed in cases in which the tubercular lesion gave rise to intestinal obstruction. The results of this operation will be greatly improved in the future when intestinal resection will be performed as soon as a localized tubercular lesion can be diagnosticated, and before the patient's general condition has been seriously impaired by the mechanical obstruction.

Intestinal resection has been most frequently performed for tuberculosis in the ileo-cecal region. A number of cases, however, have been recorded in which the seat of the disease was the small intestine. Dr. Rudolph Matas made a successful enterectomy for intestinal stricture, following the healing of a tubercular ulcer involving the upper portion of the jejunum. The patient made a rapid and permanent recovery. (Personal communication.)

König ("Die stricturirende Tuberculose des Darmes und ihre Behandlung," *Deutsche Zeitschrift f. Chirurgie*, 1892, B. xxxiv, p. 62) reports five cases of stricture of the intestine caused by cicatricial contraction of tubercular ulceration, all treated by laparotomy and resection of the intestine with circular enterorrhaphy. Two of the patients died; one from exhaustion, the other from the giving way of a suture, an accident which resulted in leakage and diffuse peritonitis. He believes that this pathologic form of cicatricial stenosis is much more frequent and more easily recognized than has hitherto been thought. He has met with this affection most frequently in persons between 20 and 30 years of age, and especially in those suffering from other tubercular lesions. He has made a careful investigation of such cases and found that the clinical history usually reveals a chronic cause, frequent attacks of colic with constipation, tympanites, visible peristalsis and peculiar splashing and musical sounds, ending with a sound which resembles that of fluid driven forcibly from a syringe. The disease invariably produces great emaciation and anemia. In spite of the feebleness of the patients, König thinks surgical interference advisable, especially as the ulceration is probably still progressing in part of the cicatricial contraction and often the tubercular disease elsewhere is not far advanced.

Treves ("Resection of Intestine," *The Lancet*, Jan. 4, 1896) made a resection of the intestine for tubercular stricture and united the bowel ends by the use of Murphy's button. The patient made a satisfactory recovery.

Sachs (*Archiv für klin. Chirurgie*, 1892, B. 43), reports the following case of resection for intestinal tuberculosis: A woman, aged 41, had suffered for a long time from constipation, and for two years had had loss of appetite and gradually increasing marasmus and debility. On examination a hydronephrosis of the right kidney was discovered, and also a swelling in the right iliac fossa, which was supposed to be of a malignant nature. Laparotomy was performed when the right iliac fossa was found to be filled up by a hard swelling, which was the size of an adult's fist. Surrounding the ileum was a band of contracted fibrous tissue with tubercular granulations in some places. The diseased parts were resected and the two ends of the intestine joined together by circular enterorrhaphy. The patient recovered and was in a satisfactory condition several weeks after the operation. On examination of the specimen removed the ileum was seen to be surrounded by a band of scar tissue and granulations. At the junction of the ileum with the cecum there was a large tubercular mass, which extended to

the mesenteric glands. The mucous membrane of the cecum was replaced by tubercular granulations, which extended into the muscular coat, and on microscopic examination were seen to consist of epithelioid and giant cells. He collected thirteen cases of resection of the ileo-cecal portion of the intestinal canal for tuberculosis, of which eleven recovered.

Zahlmann (*Hospitals Tidende* 1892, No 36) reports a case of tubercular stricture of the intestines removed by Tage Hansen of Denmark. The patient, a girl, aged 17 years, had been previously treated for tuberculosis of the phalanges of the fingers and toes. For one and a half years she had exhibited signs of stricture of the intestines, and at the laparotomy the entire cecum, with the adjacent parts of the ascending colon and ileum, was found to be the seat of an inflammatory mass which had produced a stricture an inch and a half in length, of a diameter corresponding to that of a lead pencil, while the walls were nearly an inch in thickness. Six inches of the ileum, the entire cecum and four inches of the ascending colon were removed. The healthy ends of the ileum and colon were united by means of Lembert's sutures, the difficulty in adapting the different lumina to each other being overcome by dividing the ileum by an oblique section at the expense of the convex side. The patient recovered and remained in good health at the time the report was made six months after the operation.

Of five cases of intestinal tuberculosis in which the cecum and colon were the seat of disease, and in which Czerny resorted to resection and circular suturing, two died of peritonitis and one of hemoptysis after complete recovery from the operation. In one case the peritonitis was caused by leakage through one of the needle punctures, and in the second the perforature occurred in consequence of abscess formation in the line of suturing. The patient died from the effects of peritonitis, septic pyemia and metastasis, five weeks after the operation. In one case the operation proved successful, but was followed by rapid generalization of the tubercular process, an observation fully corroborated by Wahlländer and Wolff, who have called special attention to the diffusion of tubercular processes after intervention for what appeared as localized processes. In one case of secondary tuberculosis, following rupture of a tubercular adnexal abscess into the intestine, circular suturing after excision was found impossible and consequently an artificial anus was established with an excellent functional result. Among the cases operated upon by Czerny, and reported by Rindfleisch ("Ueber die an der Heidelberger Chir. Klinik ausgeführten Operation am Magen und Darme." *Beiträge zur Klin. Chirurgie* B. ix, p. 661), are several in which the remote results of operations for intestinal tuberculosis have since been ascertained. In the case of a woman, 34 years of age, operated upon in 1886, nothing definite could be learned as to the subsequent history. In the case of an ileocecal resection performed in 1888, on a man 30 years of age, death resulted three years later from pulmonary tuberculosis. The postmortem revealed tubercular ulcers in the colon and small intestines, with miliary tubercles on the peritoneal surface and cheesy mesenteric glands. No information could be had in the case of a man, 54 years of age, subjected to ileo-cecal resection, but the operation appeared to have exerted no influence in checking the progress of the pulmonary affection. A man, 26 years old, died of pulmonary tuberculosis two years after the operation. A woman, 22 years of age, was in good health four years after the operation. A man, 31 years old, was found in excellent health four years after the operation, having gained during this time twenty-three pounds in weight. This patient suffered only occasionally from catarrh of the colon, the attacks being of short duration. These cases go to prove that resection for intestinal tuberculosis in well selected cases yields satisfactory remote results, while the reverse is true if the operation is performed under adverse conditions.

Rentier ("Cæcum provenant d'une résection iléo-sacrale pour tuberculose." Bulletins et Mémoires de la Société de Chirurgie, 1896, No. 7) resected the entire cecum for tuberculosis and united the bowel ends by means of Murphy's button. Death occurred on the sixth day after the operation. The lumen of the button, which remained *in situ*, was completely blocked by feces. Additional tubercular ulcers were found in the jejunum.

Caminiti-Vinci (*Riforma Medicinia*, July 11, 1896) reports the case of a man, aged 24, without any tubercular family history, who for the last nine months had suffered from severe pain in the left superior quadrant of the abdomen, aggravated after meals; no diarrhea or vomiting. In the affected region an ill defined swelling could be felt, descending slightly with inspiration, rather painful on palpation. The patient, not improving under medical treatment, was operated upon March 8, 1896. The omentum was found thickened, hard and adherent to the small intestine for about ten centimeters; this was excised, and also about thirty centimeters of the intestine itself, with its mesentery and glands. The bowel was united by circular suturing. The patient recovered and remained in good health four months after the operation. Macroscopic and microscopic examination proved the tubercular nature of the disease in the parts removed.

Courtillier ("Tuberculose chronique de l'angle ileo-cæcal. Resection, Enterorrhaphie, Guérison, Fistule pyo-stercorale, Operation, Mort, Autopsie." Bulletin de la Société Anatomique de Paris, 1896, No. 13) reports the case of a boy, 12 years old, operated upon by Broca for tuberculosis of the cecum. The entire cecum was resected and the ileum united with the ascending colon by circular suturing. The patient recovered from the operation and remained in perfect health for three years, when a fecal fistula appeared at the site of operation. Operation for closure of the fistula was followed by death. The autopsy showed the small intestine in a perfectly healthy condition, but the disease had reached the ascending colon and was complicated by tuberculosis of the left lung.

Durante ("Resezioni intestinali per tuberculosi del cicco." R. Acad. Medica di Roma, No. 4, 1895) has resected the cecum for tuberculosis five times. He calls attention to the difficulties presented relative to making an early diagnosis. Intermittent diarrhea for two to six years is a conspicuous and almost constant symptom. For a long time the general health is not much impaired. Symptoms of progressive cicatricial stenosis finally appear. In one case he was able to ascertain from examination of the specimen that the tubercular process had its primary starting point in the appendix. Of the five cases four lived and were in good health five to seven years after the operation. In one case relapse was due to incomplete removal of the infected tissues. He regards the prognosis as favorable after a complete extirpation of the affected portion of the intestine.

Emil Müller ("Extra-abdominal Tarmresection mid fortsatz; Extra-abdominal Behandling. *Hospitals Tidende* No. 3, 1896) resorted to resection in two cases of tubercular stricture of the intestine. In the first case the disease extended over the lower part of the ileum, cecum and ascending colon to within an inch of the right colic flexure. In the second case, the operation was performed extra-peritoneally. After opening the abdomen by lateral incision the colon was made movable by incising the external layer of the meso-colon, when the diseased portion of the intestine was brought forward into the wound. The inner layer of the meso-colon was sutured to the inner margin of the incision and the peritoneal cavity on the outer side of the bowel was shut out with an iodoform gauze tampon. After six days the affected portion of the intestine was extirpated extra-peritoneally. The continuity of the intestinal canal was restored by circular suturing, which could be done without invading the excluded peritoneal cavity. The external wound was sutured and drained. The patient recovered rapidly, without any untoward symptoms and was discharged from the hospital with his health restored.

To what extent operative procedure can be carried in true cases of intestinal tuberculosis with ultimate recovery is well shown by a case reported by Körte (Verhandlungen der Deutschen Gesellschaft für Chirurgie, 1894.) The patient, a man, 25 years old, was operated upon in 1891 for acute suppurative peritonitis. The following year, March 16, the appendix was removed. In August, of the same year, a swelling developed along the course of the cecum and ascending colon. August 27, the cecum and ascending colon, nearly as far as the hepatic flexure, were excised. Healthy tissue was not reached. An artificial anus was established. The microscope demonstrated the tubercular nature of the intestinal affection. The enterotome was used without any benefit. In November, twenty-one centimeters of the colon was resected. The end of the colon was invaginated and sutured and an entero-anastomosis established between the colon and the lower portion of the ileum. A fecal fistula followed the operation. In February, 1893, Diffenbach's enteroplasty was performed, but proved unsuccessful. In May, a loop of the small intestine was implanted into the sigmoid flexure. For two weeks there were normal evacuations per rectum, then a fecal fistula formed. July 3, what was left of the colon was permanently and completely excluded by closing both ends. Regular evacuations by rectum followed. July 23, the excluded colon was resected. Patient recovered. Subsequent treatment was with iodoform gauze packing. The fecal discharge from the fistula was always liquid, but as soon as it passed through what remained of the colon the stools became natural. Only one case of resection for intestinal tuberculosis has come under my own observation.

Tuberculosis of the cecum and ileum; resection of cecum and eighteen inches of the ileum with corresponding portion of mesentery. Restoration of continuity of intestinal canal by lateral anastomosis with the aid of decalcified bone plates. Recovery; return of the intestinal affection and death six months after operation.—The patient was a spare man of medium height, 37 years of age, and a farmer by occupation. He is unaware of the existence of any hereditary taint or predisposition to tuberculosis or malignant disease in the family. His health was excellent prior to Aug. 16, 1887. On that day he was taken suddenly ill with an attack of vomiting, without any obvious cause, which lasted for six hours. The patient insists that toward the last he vomited fecal matter. He recovered rapidly and remained in comparatively good health until the following October, when he suffered from a similar attack of four hours duration. This time he experienced a sharp pain in the ileo-cecal region, and soon after felt a distinct swelling in that locality. From this time on until March, 1889, the pain recurred periodically, the intervals becoming shorter until pain became almost continuous with few and incomplete remissions. During this time he suffered also a great deal from flatulence. The bowels were inclined to be loose, but the general health was not seriously impaired. Since March, 1889, diarrhea became a prominent symptom, the stools being liquid, but showing no trace of blood or mucus. Pain increasing in severity and more constant, and always partially relieved by the free escape of gas per rectum. At the time he entered the hospital (Oct. 9, 1889), he had lost forty-five pounds in weight. Examination at this time revealed the existence of a hard, nodulated, fixed swelling in the ileo-cecal region, and tympanites in the hypogastric and umbilical regions. Distention of the colon by rectal insufflation of hydrogen gas made the swelling more prominent and defined. Not much tenderness on pressure. Digital exploration of the rectum yielded a negative result. Marasmus and anemia were well marked. For the last seven months the patient has had daily from four to six liquid discharges from the bowels. Appetite is impaired, slight rise in the evening temperature, pulse from 80 to 90 per minute. From the history of the case, and more especially from the character and location of the swelling, a probable diagnosis of tuberculosis of the cecum was made. As the usual medical treatment, which had been pursued for months, afforded but temporary relief, the consent of the patient and his friends to an operation was readily obtained. Laparotomy was performed on the day of his admission into the hospital. The abdomen was opened by an incision from near the middle of Poupart's ligament to a point half way between the anterior superior spinous process of the ileum and umbilicus. On opening the abdomen the swelling at once came within easy reach. Examination showed that the swelling involved the entire circumference of the cecum, and its immobility suggested that it was intimately connected with the retroperitoneal tissues by inflammatory adhesions. The lower portions of the ileum and cecum were emptied by displacing their contents, and each part was entrusted to an assistant, who was instructed to prevent fecal extravasation by digital compression, until the completion of the anastomosis. The ascending colon was divided about two inches below the margin of the swelling and the ileum near its junction with the cecum; both sections showed that the visceral incisions had been made through healthy tissue. The bleeding vessels were tied with fine silk ligatures. Several large partially caseous glands were found in the retroperitoneal space behind the cecum and enucleated in one large mass with the cecum and a portion of peritoneum, which was adherent to the glands. After the removal of the cecum it was noticed that the mesentery of the lower portion of the ileum contained several enlarged glands, consequently, after preliminary ligation, it was excised with eighteen inches of the ileum. During the whole operation a small compress was kept in the abdominal cavity to prevent prolapse of the small intestines, and to guard against infection. After all hemorrhage had been carefully arrested, both ends of the bowel were closed by invagination and a few stitches of the continuous suture; the first stitch was made to transfix the mesentery at the point where it was invaginated into the bowel. Medium sized perforated decalcified bone-plates were used in making the ileo-colostomy, by lateral approximations. An incision about two inches in length near the closed ends of both intestines was made at a point opposite the mesenteric attachment, and into each opening a bone-plate was inserted, and the lateral sutures, armed with a needle, were passed about an eighth of an inch from the margin of the visceral wound, from within outward and in such a way as not to include the peritoneum, at a point half way between the angles of the wound. The surfaces of the bowel corresponding to the part covering the plates were freely scarified with an ordinary sewing needle. The visceral wounds were now brought *vis à vis* in such a manner that both closed ends were directed downward, bringing in this way the free surface of the colon and ileum together. Before any of the plate sutures were tied, a number of Lembert sutures were applied posteriorly, so as to approximate the serous surfaces along the margin of the plates, thus affording additional security in maintaining coaptation. The posterior pair of approximation sutures was now tied with sufficient firmness to hold the parts in contact without sufficient pressure to cause gangrene, after which both pairs of sutures not armed with needles were tied. During the tying of these sutures it is of the greatest importance that an assistant should keep the plates accurately and closely pressed together. The last to tie was the second anterior pair of trans-

fixion sutures, and as this was being done the bowel on each side was carefully pushed in between the plates with a probe. After all the approximation sutures were tied, it only remained to apply on the anterior side a few Lembert sutures. After the exposed parts were disinfected and dried, the bowel was returned into the abdominal cavity and anchored near the wound with a silk suture, which was made to embrace the parietal peritoneum on one side and the mesentery on the other, at a point opposite the anastomotic opening. The abdominal incision was sutured throughout, no provision was made for drainage. The subsequent history of the case was uneventful. The highest temperature registered was on the third day when it reached 101.5 degrees F., but returned to normal on the fourth day. During the first two days liquid food was administered by rectum. After that time the patient was allowed milk, beef tea and raw eggs, and after another week he was given the ordinary hospital diet, which he relished. The bowels moved several times a day, the passages gradually becoming normal in color and consistence. The external wound healed by primary intention with the exception of a small place where a stitch abscess formed at the end of the first week. At the ninth day half of the plate in the colon passed per rectum, and the following day the remaining half, with the plate from the ileum with the sutures attached, were found in one of the stools. The patient left his bed on the twenty-eighth day after the operation, and three days later he returned to his home. At the time he left the hospital nothing abnormal could be felt in the right iliac fossa, no pain and no tenderness on pressure. He gained rapidly in flesh and strength, and when I saw him again, during the latter part of January, 1890, he weighed nearly as much as before he was taken ill. Since the operation he has had no pain, no diarrhea, and the discharges from the bowels once or twice a day were normal in every respect. At this time, however, I was able to detect a small hard swelling behind the colon at a point above where the ileum had been attached, which I regarded as a recurrence of the disease along the chain of lymphatics behind the peritoneum, but no evidence of a return of the disease in the bowel could be found. In the course of a few months the patient died from the effects of the recurrent disease without any symptoms of obstruction.

I have had reason to regret that I did not resort to a second operation as repeated operations in similar cases have finally succeeded in eliminating the disease. The specimen removed represents the entire cecum, a number of cheesy mesenteric and retroperitoneal glands, eighteen inches of the ileum with the corresponding mesentery. A few small tubercular ulcers were found in the lower portion of the section of the ileum removed. The tubercular process had evidently started in the cecum which it involved in its entire circumference. The walls of the cecum had become greatly thickened by the infiltrations. The lumen of the ileo-cecal valve was not larger than an ordinary lead pencil, and the interior of the cecum, near the valve, presented a number of deep excavations resulting from the breaking down and ulceration of the tubercular mass. The ileum for a considerable distance was the seat of a well marked compensatory hypertrophy, the thickening of its walls being due to an increase in muscular fibers, a result which so constantly follows progressive intestinal stenosis. The presence of numerous caseous mesenteric and retroperitoneal lymphatic glands, the character of the ulcers and microscopic examination of the diseased tissues removed, proved the tubercular nature of the inflammatory process. Although in this and some other cases the use of decalcified bone plates proved satisfactory in establishing a lateral anastomosis, I have discarded largely this and similar mechanical aids in intestinal surgery and have learned to rely on suturing in all cases in which there are no contra-indications presented to this method of dealing with intestinal wounds.

From the accumulated experience of the past in the treatment of intestinal tuberculosis by resection, it becomes evident that this operation is indicated in all cases in which the disease is sufficiently circumscribed to admit of complete removal, and the general condition of the patient is such as to entitle us to the hope that the operation will not prove fatal by its immediate effects. It is in such well selected cases that enterectomy will find far better results than any other operative procedure, as it has for its object the complete eradication of the disease, thus protecting the patient against reinfection from this source.

Partial physiologic exclusion of affected portion of intestinal canal by entero-anastomosis.—Ten years ago I made a series of experiments on the lower animals for the purpose of demonstrating the value of partial physiologic exclusion of the intestine by entero-anastomosis in the treatment of certain localized affections not amenable to resection. The results of the experiments proved that the excluded portion undergoes atrophy and is placed in a condition approaching physiologic rest. In none of the experiments did the excluded portion became the seat of fecal accumulation.

In the introduction to this part of the paper on "Experimental Intestinal Surgery," I said: "As extensive resections of the intestine are always attended by great risks to life from trauma, I concluded to study the subject of sudden deprivation of the system of a more or less extensive surface for digestion and absorption, by eliminating or diminishing the cause of death from this source, by leaving the intestine, but by excluding permanently a certain portion from participating in the functions of digestion and absorption; in other words, by resorting to physiologic exclusion. These experiments were also made to determine the tissue changes which would take place in the bowel thus excluded, and to learn if under such circumstances accumulation of intestinal contents would take place and constitute a source of danger, as had been feared by the older surgeons."

The results of the experiments, as well as clinical experience since that time, have shown conclusively that this fear is unfounded. In speaking of the results of the experimental work and its application in intestinal surgery, the following statements were made in the same paper: "The exclusion was complete, or nearly so, hence we must conclude from the postmortem appearances, that in nearly every instance the excluded portion presented an absorptic, contracted condition, and was only sparingly supplied with blood vessels. From a practical standpoint these experiments teach us that a limited portion of the intestinal canal can be permanently excluded from the processes of digestion and absorption in proper cases, by operative measures without incurring any risk of fecal accumulation in the excluded part. These experiments demonstrate also that physiologic exclusion of a certain portion of the intestinal tract is a less dangerous operation than excision, and that in certain cases of intestinal obstruction where excision has heretofore been practiced, it can be resorted to as a substitute for this operation in cases where excision is impracticable or where the pathologic conditions which have caused the obstruction do not, in themselves, constitute an intrinsic source of immediate or remote danger to life. The postmortem appearances of the specimens of these experiments tend to prove that as long as any of the contents of the intestines reach the excluded portion, the peristaltic or anti-peristaltic action in that part is effective in forcing it back into the active current of the fecal circulation."

Since that time entero-anastomosis has become a well established operation, and has proved of signal success in the treatment of limited intestinal tuberculosis complicated, as it so often is, by cicatricial stenosis. The operation effects two desirable objects in the treatment of such cases. 1, it relieves the symptoms of intestinal obstruction; 2, it secures rest for the part affected. I have had an opportunity to perform entero-anastomosis in two cases of intestinal tuberculosis.

Intestinal tuberculosis complicated by acute intestinal obstruction caused by cicatricial stenosis; ileo-ileostomy; recovery; patient in almost perfect health two years after the operation.—The patient was a boy 16 years of age, member of a healthy family, free from any predisposition to tuberculosis or malignant disease. He had never been seriously ill and was in the best of health, weight 140 pounds when he was attacked with colicky pain, which he referred to the umbilical region, December, 1895, which continued for two days. He recovered from this attack and remained in fair health until Dec. 18, 1896, when he was again seized with fever pains in the abdomen of a colicky nature, which continued until he entered the hospital. Bowels had not moved for two days prior to his present illness. Vomiting which soon became fecal, and absolute constipation followed by great tympanites came on in rapid succession. The attending physician made a diagnosis of intestinal obstruction and resorted to the usual treatment including the use of high rectal enemata with little or no relief. When he was admitted into the St. Joseph's Hospital, March 1, 1896, he had lost forty pounds in weight. He was very anemic and the emaciation was pronounced. The abdomen was enormously distended, visible intestinal coils could be distinctly outlined. Temperature was normal, pulse small, 100 per minute. There had been no free movements from the bowels since the attack; frequent attacks of vomiting, at times fecal in character. Rectal examination yielded no information regarding the anatomic location or nature of the obstruction. The day after his admission into the hospital, after thorough preparatory treatment, laparotomy was performed. The abdomen was opened in the median line, half way between the umbilicus and pubes. Intestinal coils, enormously distended and exceedingly vascular, protruded at once from the wound and were carefully protected with compress wrung out of a hot physiologic solution of salt. One of the first things noticed was the existence of numerous enlarged mesenteric glands. Some of them were the size of a hazel nut and presented distinct evidences of beginning caseation. The visceral as well as the parietal peritoneum was studded with innumerable tubercle nodules. The existenee of peritoneal and glandular tuberculosis was at once made evident. In searching for the seat of the obstruction the distended intestine was traced in a downward direction, the intestinal loops being replaced as soon as examined so as to prevent extensive eventration. In reaching the lower part of the ileum, the obstruction was found about twelve inches above the ileo-cecal junction, in the form of a tight circular stricture. Above this point the intestine was uniformly distended, very vascular, while below the obstruction the intestine was empty, contracted and pale. An ileo-ileostomy was made by establishing an anastomotic opening between the lower part of the distended ileum and that part of the ileum between the obstruction and the cecum. Before the visceral incisions were made the serous surfaces of the convex side of the intestinal loops, which were to be united, were sutured together with a row of Lembert stitches, extending a little beyond the intended limits of the incisions. On incising the proximal, distended loop the bowel was drawn well forward, the patient placed on his right side and as much of the intestinal contents as could be poured out was evacuated through the incision. After incising the empty loop to the same extent the mucous membrane was sutured all around and finally a row of anterior serous stitches completed the operation. The parts exposed were thoroughly cleansed, dried and lightly dusted with iodoform, after which the intestines were returned and the external incision closed in the usual manner. The patient recovered promptly from the immediate effects of the operation. The incision healed by primary intention throughout. The bowels moved freely the day after the operation. The tympanites diminished rapidly and disappeared entirely in the course of a week. For a few days the stools were copious and liquid, later once a day and normal in color and consistence. Rectal feeding was continued for four days, later liquid food by the stomach, followed by solid food at the end of the first week. The patient left the hospital in excellent condition; March 30, 1896. A letter from his physician received recently, states that he is in perfect health, having gained twenty-seven pounds in weight two years after the operation.

Careful search for tuberculosis in other organs was made but proved negative. The tubercular nature of the intestinal affection in this case was obvious from the simultaneous existence of peritoneal and lymphatic tuberculosis. The entero-anastomosis relieved the obstruction promptly and placed the affected organs in a condition for spontaneous healing of the tubercular lesions. The patient was placed upon the prolonged internal use of guaiacol, which may have contributed to the remarkable result of the operation.

Tuberculosis of the cecum and ascending colon, complicated by tuberculosis of the urinary organs; ileo-sigmoidostomy; death forty-eight hours after operation from exhaustion.—The patient was a man 38 years old, who was admitted into the Presbyterian Hospital Nov. 6. 1897. His health began to decline four years ago, when symptoms of chronic cystitis developed. For a long time the urine contained pus and at times blood. In February, 1896, he had a chill followed by fever and pain in the region of the right kidney. A swelling developed below the costal arch on the same side and soon reached as far as the crest of the ilium, and to within an inch or two of the median line on the left. The temperature ranged between 102 and 104 F. for five days. A second chill occurred a few days later followed by slight jaundice, which continued for a few days. The swelling was diagnosticated as an abscess, which was incised in front at a point half way between the last rib and crest of the ilium. On cutting through the abdominal wall the distended kidney presented itself and was incised, and about a pint of pus escaped. The cavity was washed out and drained. For some time urine escaped through the drainage opening. Three weeks after the operation feces escaped through the opening and the fecal fistula has remained since that time. At the time the patient entered the hospital he was very anemic and greatly emaciated. Examination of the bladder and prostate left no doubt that both of these organs were the seat of a tubercular affection. Through the fistulous opening a probe could be inserted into the ascending colon. Gas and fecal material escaped through the opening daily. Action of bowels irregular, diarrhea and constipation alternated with each other. From the cecum in the course of the colon a resistant swelling could be felt, which extended somewhat above the fistulous opening. Examination of the lungs revealed a limited infiltration in the left apex. A slight rise in the evening temperature was almost a constant feature. The fistulous opening externally was enlarged and a large cavity found between the skin and abdominal muscles, which was lined with fungous granulations. These were scraped out with a sharp spoon and the cavity thoroughly disinfected and packed with iodoform gauze. This and the subsequent operations were performed in the clinic of Rush Medical College. The scraping out of the cavity was followed by increased fecal discharge and in a short time the fistulous opening in the colon was large enough to insert the tips of two fingers. Carbonate of guaiacol and tonics were admintered internally, but the patient continued to lose strength and flesh. Owing to the existence of formidable complications and the extent of of the intestinal affection I decided to exclude the cecum and colon, as far as the sigmoid flexure, from the fecal circulation, by performing ileo-sigmoidostomy.

After making careful preparation the operation was performed Dec. 20, 1897. The abdomen was opened in the median line. The cecum and ascending colon, nearly as far as the hepatic flexure, were found imbedded in an extensive exudate. Numerous enlarged lymphatic glands especially in the mesocecum and mesentery of the ascending colon. The anastomotic opening was established between the ileum, about eighteen inches above the cecum and the sigmoid flexure. The operation was performed in a similar manner as in the case of lateral anastomosis after excision with the exception that no bone plates were used, the visceral wounds being united by two rows of sutures. The operation was completed in less than an hour. Very little shock followed. The next day, however, vomiting and symptoms of prostration set in, the pulse became more rapid and feeble, but the temperature never exceeded 100 F. Death occurred forty-nine hours after the operation.

The clinical history in this case points to primary tuberculosis of the urinary organs followed by intestinal and, later, pulmonary tuberculosis. A number

of cases have been reported in which entero-anastomosis was performed for intestinal tuberculosis. Hofmeister ("On Multiple Stenosis of the Intestine of Tubercular Origin," *Beiträge zur Klinischen Chirurgie*, B. xvii, No. 3) reports a case of multiple tubercular strictures of the intestine treated by establishing an entero-anastomosis. The patient, a man aged 32, had suffered for four years with attacks of colic accompanied by vomiting and constipation, recurring at intervals of greater or less length, the last seizures had been particularly severe. Finally the patient was taken to the surgical clinic of Bruns, at Tübingen, with all the symptoms of a marked intestinal obstruction. The operation, which was undertaken without delay, revealed ten annular strictures of the small intestine, for the most part, very narrow and distributed over two meters of the bowel. The large intestine was absolutely empty and contracted. Resection being out of the question on account of the debilitated general condition of the patient an anastomosis was made between the intestines above and below the seat of obstruction. At the very outset the distended intestine was punctured with a small trocar, to evacuate its contents. The puncture was closed with two rows of sutures. The patient was temporarily improved by the operation, but died the following day in sudden collapse. The autopsy revealed the fact that death had been caused by a general peritonitis. Inspection showed that the sutures inserted for the purpose of closing the puncture-opening were insufficient to resist the intra-intestinal pressure by gas, and had given way, followed by fecal extravasation. Besides the ten discovered at the operation, two additional strictures were found, one near the ileo-cecal valve and the other a little higher up. When the strictures are multiple the disease usually involves the ileum. Hofmeister found records of eighteen cases of multiple strictures of the intestines of a tubercular nature.

Murwedel ("Ueber Entero-anastomosis," etc. *Beiträge zur Chirurgie*, B. xiii, Heft 3) reports a case of tuberculosis of the cecum treated by entero-anastomosis from Czerny's clinic. The patient was a man, 43 years of age. No hereditary predisposition to tuberculosis in the family. He suffered from two attacks of localized peritonitis, probably caused by appendicitis, the first in 1870, the second in 1887. Since last attack pain and tenderness in the right iliac fossa remained. In 1891, the pain increased, attended by colicky pains in the abdomen, the latter disappeared after two or three minutes under a loud pouring sound. Bowel movements were irregular. A few weeks before his admittance into the clinic eructations and transient vomiting returned. He was treated for some time in the medical clinic, by high enemata without any benefit. He was admitted into the surgical clinic, August 17, 1893. At this time with the exception of a chronic conjunctivitis, rhinitis and pharyngitis and a slight pulmonary emphysema, the general health of the patient did not appear to be much impaired. Cecal region was prominent, and to the right of the cecum and ascending colon, particularly the latter, a hard cylindrical swelling could be felt, extending from the iliac spine to the tip of the eleventh rib. The swelling was fixed and tender on pressure, there was visible peristalsis of small intestines near cecum.

Clinical diagnosis: Stenosis and tumor formation in the region of the cecum and ascending colon, chronic inflammatory (perhaps tubercular) process. First operation, Aug. 20, 1893. Vertical incision in the linea Spigelii showed infiltration of pre-peritoneal tissues and firm adhesions between anterior abdominal wall and ascending colon. In separating the adhesions an ulcerated portion of the colon near its middle was torn and a quantity of pus but no fecal material escaped. From this opening digital exploration showed that the colon was ulcerated as far as the ileo-cecal valve, which induced the operator to abandon all thoughts of performing a resection. The tear in the bowel was sutured and an entero-anastomosis made. The lower portion of the ileum was distended and hypertrophied, on the other hand the transverse colon contracted and atrophied. These two parts of the intestinal canal were then brought into communication by establishing, by incision and suturing a free anastomotic opening. The sutured wound of the colon was fastened to the abdominal wall with two peritoneal sutures. External incision was closed with the exception of a space over the cecum to secure drainage, which was effected by using the iodoform gauze tampon. The diagnosis made at this time confirmed the previous suspicion of the tubercular nature of the affections. Bowels moved on the second day after the use of an enema. A week after the operation some fecal matter was mixed with the discharge from the wound. When the patient was discharged, four weeks after the operation, the wound was healed, with the exception of a fistula, which discharged a small quantity of pus, but no fecal material. Bowels moved without the aid of cathartics or enemata. General conditions much improved. During the fall of the same year, he was attacked with influenza and at the termination of the illness the parts around the fistula became inflamed and soon after, a more copious flow of pus ensued, which became mixed with feces. He re-entered the clinic Nov. 31, 1893. The swelling in the cecal region was smaller but firmer than at the time of operation. There was constipation, which when relieved by cathartics, was followed by diarrhea, some of the fecal material escaping through the fistula. At this time the fistulous tract was enlarged with the knife sufficiently to enable exploration of the abscess cavity with the finger. The cavity was about the size of a walnut, partly filled with hard fecal masses and lined with tubercular granulations. Curettage and iodoform gauze tamponade were used. After operation nearly all of the feces escaped through the fistula. Third operation was performed December 7 of the same year. The old scar was incised and the adherent ascending colon separated. During this step of the operation a small subcutaneous abscess was opened. The fistulous opening was next exposed and was found near the lower end of the ascending colon, where a defect was found large enough to admit the tip of the index finger. Exploration of the interior of the cecum revealed a large cicatrized surface. The margins of the intestinal fistula were vivified and the opening closed with two rows of sutures, the operation being entirely extra-peritoneal. The external incision was closed with the exception of a space large enough to bring out the iodoform gauze tampon. No unfavorable symptoms followed the operation. Normal stool after injection on the eighth day. Patient left the hospital with a small fistula on the last day of the same month, almost in perfect health and with normal bowel movements. One year later the fistula still remained

and at times small quantities of feces escaped, otherwise the patient was in good health and had gained twenty-three pounds in weight. Czerny attributes the healing of the extensive tubercular ulcerations to the elimination of the affected part of the bowel from the fecal circulation by the ileo-colostomy. Schiller reports three cases of intestinal tuberculosis treated by physiologic exclusion of the affected part, operated upon in Czerny's clinic during a period of four years. ("Ueber Darmoperationen an der Heidelberger Chirurgischen Klinik, etc." Dissertation, 1896.) In all cases the disease was located in the cecum and had given rise to chronic obstruction. In two cases the anastomotic opening was made between the ileum and transverse colon, and one between the ileum and the ascending colon. In two cases the cecum was incised and the tubercular ulcers curetted. The visceral incision was closed by suturing parallel with the long axis of the bowel. In one case the diseased appendix was excised in addition. In one the gall bladder was extirpated at the same time for lithiasis and chronic inflammation. In all of the cases the contraindications to resection were well defined. In one case the operation was done by the use of the Murphy button, which was removed from the ampulla of the rectum on the fifteenth day after a severe hemorrhage three days previously. The pulmonary symptoms became seriously aggravated after the hemorrhage. All these cases recovered and the patients left the hospital improved. In one case (reported *in extenso* above), a fecal fistula developed, which was sutured on two occasions with partial success.

The exclusion of the affected part of the intestine although not complete, led to speedy healing of the ulceration, as was shown in one case at the second operation, four and one-half months later. The healing of the ulcers was undoubtedly favored by the atrophy and diminished peristaltic action, conditions which are always established in the excluded part soon after the operation.

James Israel ("Ueber Chirurgische Heilung von Peritoneal und Darmtuberkulose," *Centralblatt für Chirurgie*, 1896, No. 4) reported to the Surgical Society of Berlin a case of tuberculosis of the cecum and ascending colon in a woman 20 years of age, greatly improved by establishing a communication between the ileum and the ascending colon. The disease was attended by symptoms indicative of chronic intestinal tuberculosis. Exploratory laparotomy was performed and a probable diagnosis of sarcoma was made. The mesenteric glands were found enlarged. Later a second operation was performed, when a swelling the size of an apple was found projecting into the ascending colon, complicated by disseminated peritoneal tuberculosis. The patient made a good recovery, gained in weight, and after seven months, the swelling was reduced in size to that of a walnut.

Gessner ("Entero-anastomose bei tuberculöser Darmstriktur," *Centralblatt f. Chirurgie*, 1896, No. 6) made a laparotomy on a case in which the cecum was tubercular and had attained the size of a goose-egg. The swelling was nodulated and the serous coat studded with miliary tubercles. The obstruction caused by cicatricial stricture in the region of the ileo-cecal valve was relieved by an anastomosis between the ileum and the ascending colon, which was made by the aid of the Murphy button. The button was discharged per rectum on the thirteenth day. The operation was followed by manifest improvement.

A very interesting case of intestinal tuberculosis complicated by invagination came under the observation of Czerny and is reported in detail by Murwedel ("Ueber Entero-anastomose, etc." *Beiträge zur Klinischen Chirurgie*, B. xiii, Heft 3). The patient was a boy 14 years of age who, two months prior to his admission into Czerny's clinic, was suddenly taken ill with vomiting and severe pain in the abdomen, attended with the appearance of a swelling in the upper and right side of the abdomen. In a few days the pain subsided and the vomiting occurred less frequently. A sausage-shaped tender swelling, above the umbilicus, remained. Bowels could only be moved by the use of injections. For a few days during the early part of the attack the stools contained traces of blood. On his admission into the clinic, June 2, 1894, the patient presented an anemic appearance and was considerably emaciated. There was no fever, lungs and heart normal. Inspection and palpation revealed the existence of a cylindric swelling, ten centimeters in length, in the region of the transverse colon. The swelling was slightly movable and tender on deep pressure. Liver, spleen and kidneys were normal in size and function. Under rectal insufflation the swelling increased in size, and dulness on percussion gave way to tympanitic resonance. Capacity of colon was only three pints. The rectal injection did not increase the dulness on percussion over the swelling and was followed by the escape of hard fecal masses. Chronic invagination of ascending and transverse colon was diagnosticated. Operation was performed June 6. Median incision was made from xiphoid cartilage to umbilicus, which later had to be extended two inches to bring the invaginated colon forward into the wound. The swelling, the size of two fists, was composed of the cecum and ascending colon, into which the lower portion of the ileum had become invaginated. The intussusception could be traced as far as the right flexure of the colon. Reduction, owing to the presence of extensive adhesions, was found impossible, and resection was contraindicated by the debilitated condition of the patient. An entero-anastomosis between the ileum above the invagination and the middle third of the transverse colon, was established by incising the previously approximated ileum and colon and suturing the visceral wounds with two rows of sutures in the usual manner. Abdominal incision was closed throughout.

The existence of a tubercular lesion of the invaginated bowel was suspected from the presence of a plastic caseous perityphlitis. Recovery was without any untoward symptoms. Patient left the hospital August 9, swelling much diminished in size, bowel movements normal. A year later the patient remained in good health and examination showed that the invagination swelling had nearly disappeared. The tubercular complication presented itself in the form of caseous adhesions found at the time the operation was performed. The infection probably occurred from the intestinal canal. Whether the tuberculosis occurred as a primary affection or whether it appeared after the invagination had taken place, would be difficult to determine. Flenier describes two other cases of intestinal tuberculosis from Czerny's clinic in which the pathologic conditions produced by the disease gave rise to invagination (Virchow's *Archiv*, B. 101).

The cases reported above furnish conclusive proof

of the therapeutic value of entero-anastomosis in the treatment of intestinal tuberculosis, sufficiently limited to warrant surgical interference and beyond the reach of successful treatment by more radical measures.

Complete physiologic exclusion.—Practical experience has demonstrated the value of partial physiologic exclusion in the treatment of certain forms of localized intestinal tuberculosis. It would be natural to assume that the therapeutic value of entero-anastomosis would be enhanced if the affected part of the bowel could be completely excluded from the fecal circulation, thus securing for the diseased tissue a condition of absolute rest. At the time the writer made his experiments on physiologic exclusion of parts of the intestinal canal, he had this object in view and made a number of experiments to demonstrate the possibility and practicability of the procedure. The exclusion was made by isolating a section of the intestine and closing its ends by invagination and a few Lembert's sutures. The continuity of the intestinal canal was restored by circular suturing or lateral anastomosis. The results of these experiments proved unsatisfactory, as it was found that the retained intestinal secretions constituted a source of danger. A few years later, Salzer modified the operation by establishing a fistula in connection with the excluded portion. This method of effecting complete physiologic exclusion has been resorted to only in a very few cases in the surgical treatment of intestinal tuberculosis. I will limit myself to a detailed reference to v. Eiselberg's case.

In a case of tuberculosis of the cecum, ascending colon and hepatic flexure, this surgeon ("Zur Casuistik der Resectionen und Entero-anastomosen am Magen und Darmcanal," *Arch. f. Klin. Chirurgie*, B. 54, Heft 3), resorted to complete physiologic exclusion, with temporary benefit. The patient was a man 35 years old, who was in good health until five years ago, when a tubercular affection of the foot developed, followed soon by symptoms of acute pulmonary tuberculosis. Three years ago, the head of the tibia was operated upon by curettage, for tubercular caries. During the healing of the wound the patient suffered from an attack of perityphlitis, from which he recovered, but the disease was followed by periodic pains in the ileo-cecal region, at short intervals. During the last few months the pulmonary symptoms became aggravated and an obstinate diarrhea set in. On admission into the hospital, examination revealed extensive tubercular infiltration of left apex of lung and a cylindric swelling in the region of the cecum; the swelling was somewhat movable and tender on pressure. Operation was commenced, by making an oblique incision directly over the cecum. The cecum was found smaller than normal and not adherent. The infiltration extended from the ileo-cecal valve to the middle of the transverse colon. The affected portion of the bowel was completely excluded and the continuity of the intestinal canal restored by circular suturing, the resected end of the ileum had to be joined with the transverse colon. The mucous membrane, at the points of section, appeared to be healthy. The ends of the excluded portion were fixed in the upper and lower angles of the wound, respectively, and the balance of the abdominal incision was closed in the usual manner. From the excluded portion of the intestine mucus and pus escaped in considerable quantities. The patient improved temporarily. On the seventh day the affected part of the bowel was washed out carefully, from both ends, with a warm physiologic solution of salt. These irrigations proved the competency of the ileo-cecal valve. The flushings were found useful in diminishing the amount of the inflammatory product. The patient left his bed in three weeks. A few days later the pulmonary symptoms became more marked and when the patient left the hospital, a week later, he was attacked with pulmonary hemorrhage, which recurred several times and from the effects of which he died two months after the operation. Diarrhea reappeared soon after the operation and continued to the end. The persistence with which the diarrhea continued soon after the operation tends to establish the existence of the tubercular lesion of the mucous membrane beyond the limits of the operation.

Complete physiologic exclusion will, in all probability, have a very limited scope in the surgical treatment of intestinal tuberculosis, as the immediate dangers to life are almost equivalent to the risks incident to resection and the advantages over those of partial exclusion are not sufficient to warrant a more general recourse to this procedure. There can be but very little doubt that with an increased knowledge of the etiology and pathology of intestinal tuberculosis surgeons will be induced to resort to operative treatment more frequently in the future, and that with further improvements in the technic of intestinal operations, the surgical treatment will yield more encouraging results.

ORIGINAL ARTICLES.

WHERE THE WEAK-LUNGED OR CONSUMPTIVE AND NEURASTHENIC MAY LIVE AND ENJOY LIFE.

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OBSERVATIONS.

My object in writing this paper is to call attention to conditions, localities and influences that are beneficial to certain classes of sufferers, basing my conclusions upon my own observations and the statistics and observations of others.

It is impossible for all men to be rated by one general rule, nor will one climate suit all conditions. There is a distinctive individuality that does not allow a fixed or arbitrary procedure, men differ in their constitutions, temperaments, likes, dislikes and necessities as they do in their faces and forms. A climate favorable to long life is the one thing sought by man. The question is, where can I go to prolong my chances of life, suffer least and get the most enjoyment out of the time allotted me? Thousands are asking these questions, the consumptive perhaps more than any other, since consumption is the greatest scourge of the human race. Another class is the rheumatic, then comes the ever-present nervous individual with his many troubles, insomnia, etc. It is in the interest of these several classes that I write.

Among civilized people in temperate regions consumption, it is said, carries off one-tenth of the population and, so far as we know, there is no country entirely free from its ravages. In Iceland the disease is rare, while in the West Indies it is of common occurrence. This shows that heat is not a preventive and that cold does not necessarily produce it. That medicines are of but little, if any, use can scarcely be doubted. Cod liver oil and immunized serum are of

little or no value, climate is the one thing most promising.

I do not favor a cold climate for a sick man; a low temperature is especially detrimental to the phthisical or consumptive, notwithstanding there are strong advocates of the North, as the Adirondacks. Many cases are very much braced up for a time in a cold climate; the electro-positive conditions tend to make the depressed and jaded person feel better, but it is absurd to send a person suffering from consumption into a cold climate, as he is of necessity a person with impoverished blood, enfeebled circulation, and to place him where he must be shut up in-doors, week in and week out, and expect any lasting results for good is beyond my comprehension. I will concede many try and are much of the time out in the cold air of northern resorts, as the physician often insists that it is positively necessary to remain out. The out-door air is necessary but more die in the attempt than get any lasting benefit from such ventures. While I do not approve of cold high altitudes and extreme changes, I also do not see a fitness in warm humid climates for the consumptive. I have sent many cases of consumption to Georgia, Florida and South Carolina in years gone by. In a few instances they have been benefited, but more frequently were not.

Aiken, Summerville and Thomasville, all of which have admirable climates in comparison with central or northern New York, for the comfort of the consumptive, but the variations are even there too marked, changes are too abrupt to be what is desired. The pine forests are no doubt beneficial and soothing, by reason of the ozone and sweet resinous odors of pine; this is especially true of bronchial troubles. The middle Southern States are better for the nervous class than for the consumptive. We have traveled over the Southern States at different times; I also visited the Territory of New Mexico with the express view of learning, if possible, of its value as a health resort for the consumptive. My first stop was at Eddy, located in the Pecos Valley at an elevation of about 3,000 feet. Here I found a clear sky and lovely climate and without the extreme changes of Northern regions; here we found many persons in the various stages of consumption (so claimed) that had come for relief, and that were to all appearances enjoying fair health, at least so long as they remained. To sufferers from, or rather those fearing lung troubles, New Mexico offers conditions favorable to the non-development of pulmonary diseases. It is a climate suited to cases before the destructive stage has arrived. Here is found a dry, aseptic air, a light atmospheric pressure, a large amount of sunshine and dry porous soil, and it is never too hot when one is shaded from the sun. The air is fresh and stimulating, the prevailing winds traverse a large expanse of arid regions and is consequently freed from all dampness; hence one can be out of doors a large share of the time, an almost positive necessity for persons with weak lungs. My observations were such that I would recommend the Pecos Valley to those persons who have not yet reached the stage of lung desintegration. My advice is to go there and engage in farm and stock raising, either of which offers large returns to the industriously inclined. Land is cheap and can be had on easy terms. Farming in New Mexico under irrigation is pleasant as well as profitable. I think that for the class named no better climate need be looked for; but once the disease has developed and there are cavities in the lungs I doubt the propriety of going to New Mexico at the present or for some time to come.

New Mexico has high winds which come up suddenly, as is always true of timberless countries; the soil is dry and loose by reason of little or no rain and consequently there is but little grass or other growth to prevent the winds gathering up the dust and loose earth; hence dust and sand storms are not infrequent, though becoming less frequent and less terrible in character as the lands are brought under cultivation by the help of irrigation. During the time of high wind the air is full of dust, driving all persons in-doors, often for some hours, and even in-doors the air is full of dust particles which prove deleterious to an inflamed and highly sensitive tissue or mucous surface. When one is caught out in these storms, even if free from any lung weakness, the sense of suffocation is dreadful to say nothing of the feeling of bronchial irritation which follows and continues for some hours. Such foreign matter certainly can not act beneficially upon diseased tissues, therefore I do not think New Mexico the country for a fully developed case of consumption. I believe, however, that the time will come when it will be largely the resort for consumptives by reasons of the changes that will be wrought through irrigation and by reason of its nearness to the now populous portions of the States.

Before giving my conclusions relative to Mexico as a resort or home for the consumptive I will endeavor to disabuse the public mind of much that is false relative to Mexico and the Mexican people. It has been well said that "Mexico is a land of romance and wonder and that every noted spot has its legend." An extended description of Mexican life and customs would require too much time and space. I had an ungenerous opinion of this near-by land, having throughout my life heard only unfavorable criticisms. My first impressions were varied; the longer I was with the Mexican people and the more carefully I studied them the more favorably I was impressed toward them and their unique country.

Mexico may well be styled the Rome of America, not strictly on account of her temples and palaces, but on account of her churches and other ecclesiastical buildings, many of which have been alienated from their original purpose. Everywhere, in all the Indian towns, the grand Gothic cathedral rises above all else. In the metropolis the cathedrals are conspicuous, many of them grand, commodious and imposing. Public monuments are on every hand, many are real masterpieces. Upon the grand boulevard extending from the Alameda to Chapultepec, a distance of three miles, are numerous monuments to the memory of Aztec kings, also to King Charles, Columbus and others. There is in Mexico a strong educational interest manifest; excellent facilities in this direction are afforded at the capital by a school of fine arts, professional schools for women as well as men, an academy of fine arts, a conservatory of music, school of mines, school of jurisprudence, military institute, medical and commercial colleges, preparatory school for boys, deaf dumb and blind institutes, national museum, a superb public library with over two hundred thousand volumes. President Diaz has an idea to thoroughness, as is evinced by his prescribing a seven years' course in the national schools, the college of agriculture and college of engineering. The course includes French, English, German, Greek and Latin, geog-

raphy, meteorology, chemistry, botany, geology, architecture, agriculture, surveying, bookkeeping and political economy. The medical course is seven years. Musical culture is a prominent feature in Mexico. One of the noble institutions is the school of arts for women; in this school poor girls have unequaled advantages for learning. The government gives them a comfortable room and two meals a day. Many of the poor are supplied with clothing. Can the United States boast of a nobler benefaction? As regards civility and politeness, they are certainly the most polite people I have ever seen, with universal respect for age, genius and their superiors. Hospitality is a national characteristic; a leading inspiration among them is to make home beautiful; to this end every element of refined taste and culture is brought to bear. Americans may well copy their taste in floral and other home decorations.

The Republic of Mexico is a much misunderstood country; although near us, it has seemed to be a far off land, without merit, beauty or other attraction; its inhabitants a people that are strangers to hospitality, who live within and for themselves, whose prejudices are deeply rooted by reason of a never-to-be-forgotten unpleasantness that cost them many lives and much territory. Such I am happy to say is a misconception. A more liberal, hospitable people are not to be found. Instead of repelling they invite you to come, they ask that Mexico be better known, they seek investigation of their great country, the advantages of climate, etc.

Before giving any specific information relative to Mexico as a health resort it is well to briefly discuss what is, or should be, the accepted conclusions as to effect of climate upon certain diseases. The chief factors that act beneficially or adversely upon the consumptive.

Phthisis is the most important of all diseases for the amelioration of which climate is sought and over which, I think, temperature and humidity are ruling factors for good or evil, and that dryness is beneficial, humidity obnoxious and cold dangerous. Sunlight is a feature to be sought after by all classes of invalids and neurasthenics, but more especially is it a requisite to the consumptive.

There is little or no necessity for our dwelling to any extent upon the value of out-door air and sunshine; everyone acknowledges its benefit, though in the summer they may have a preference for the shade. The effect of light upon man's physical and moral well being is certainly analogous to the fructifying influence of the sun's rays upon the vegetable world, the existence of which depends upon light. Sunlight, clearness, transparency of air are certainly indications of purity. An atmosphere through which one can see a great distance, as in the high altitudes of Mexico, surely implies purity, absence of dust, smoke and moisture. Absence of moisture implies absence of infusoria and low forms of organisms. The changes of atmosphere in high altitudes are largely dependent upon electric conditions. There is an increase of electric tension, a higher potential quality as we gain in altitude; in other words, the dryer the air the more positive are the electric currents that surround us. Positive currents are stimulative, while negative are non-stimulating. It is only in the high, dry altitudes that we get positive electricity, hence the universal expression uttered by every one visiting high altitudes, "how light and buoyant I feel; this climate seems to just lift me up, I feel that I have a great weight removed from me, etc."

The high-level resorts are being more and more appreciated and there is an increasing tendency to go to high altitudes. Seashore resorts are much less sought than they were ten years ago, unless it may be by those having no special need other than change from home and its environments.

The chief points of importance in climatic conditions are those favorable to non-development, retardation and cure of consumption, which are dryness of air, freedom from micro-organisms, irritants and noxious gases, the largest amount of sunlight practicable, diminished barometric pressure, ozoniferous atmosphere, and chief of all a climate that admits of an out-door life the largest possible amount of time. I am sure that high altitudes in a southern latitude are the only safe resorts and efford the advantages enumerated.

I believe portions of the Republic of Mexico, the high table lands at an elevation of from 3000 to 7000 feet above the sea level offer more and better advantages than any other country. When all is considered Mexico has climatic conditions suited to almost any possible condition that can exist, since temperature and barometric pressure depend entirely upon elevation, as do also humidity and dryness. In the high altitudes there is a positive freedom from sudden changes of extreme character, by reason of the lofty and continuous mountain ranges that surround the plateau lands of the republic.

In most of the mountain resorts of the world there are one or more serious objections to recommending them as a constant home or even as a temporary resort. In northern climes the extreme low temperature is inconsistent with out-door life a large portion of the time, which is a serious objection. No medical man can conscientiously advise a cold climate for an invalid, much less for the consumptive. Another objection to high altitudes in northern climes is the sudden fall of temperature, a thing that is dangerous to an enfeebled constitution. A low, humid, hot country is equally detrimental or nearly so as that of a cold frigid one.

Portions of Mexico and New Mexico are well adapted to certain classes of nervous cases and to the improvement of pulmonary conditions. Why? By reason of the high altitude that may be attained, the air being aseptic, free from dust, irritation and low forms of organisms or microbes; by reason of the rapid evaporation of morbid secretions in the lungs promoted by the reduced barometric pressure and the dryness of the air at the elevation named, the increased oxidation of the blood and tissue changes are due to increased metabolism, dependent on the sunlight of the high altitudes and lessened air pressure; by the increased quantity of blood circulating in the lungs due to the low air pressure of the high altitudes. In high altitudes there is an increase of blood circulating through the lungs, hence increased metabolism and tissue changes. The increased activity and deep breathing attendant upon a life in high altitudes tend to improve nutrition and glandular secretions. Along with the local and general nutritional effects that are manifest from a sojourn in the high altitudes of Mexico are the delightful and stimulating effects upon the nervous system. Still another noticeable feature and one much to be desired, is the increase of red blood corpuscles and hemoglobin. Such blood

changes are unquestionably due to increased amount of oxygen inspired. Anemic conditions rapidly disappear in the sunlight of Mexico's high altitudes: rapid and remarkable improvement in the local and general conditions are coincident with the blood changes in the consumptive who is transported from the sea level to altitudes of three or more thousand feet, as has been demonstrated by numerous careful observations in Europe, North and South America.

So far as we know the only successful means of combating tuberculosis is by improving the resisting powers of the system. Out-door life in a mild, dry climate where the general health can be kept at the highest possible standard offers certainly the best possible advantages and the longest immunity. The high lands of Mexico certainly offer all that can be desired in point of climate, being neither hot nor cold, and is as near as possible suited to each and all cases. Whatever rainfall takes place in Mexico is between the months of April and November, just when needed to cool the otherwise long and occasionally dry season, most of the showers occurring during the night hours consequently seldom interferes with out-door exercise, sports or employment. The opportunity for profitable employment is a strong argument in favor of Mexico and New Mexico; lands are cheap in either country and profits large. The accommodations for invalids are meager. The hotels are not, as a rule, what they ought to be and are not generally favorably located for the invalid class, nor are they built with any thought of providing open air exercise or sun baths. The hotels are in the midst of the noise and din of business. That no provision has been made for the invalid class is due to lack of demand; the people of the North that need just such a climate have never had their attention called to Mexico. The day is near at hand when the sanitariums for the people of the more northern sections will be in the Mexicos. The land of the Montezumas needs only to be seen to be appreciated, the enchantment grows with your stay in that balmy land. While there are English-speaking people to be found almost everywhere in the republic and especially in the City of Mexico, your comfort will be largely increased if you have sufficient knowledge of the Spanish language to understand and be understood.

CLASSIFICATION OF THE LESIONS CONSTITUTING THE SO-CALLED CHRONIC NASAL CATARRH.

Read before the Chicago Medical Society, Jan. 5, 1898.

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The term chronic catarrh was formerly used for all chronic affections of the nose manifested by more or less nasal obstruction and secretion. It is still so employed by the public and to some extent by physicians, yet the studies of the last twenty years have resolved this comprehensive name into a number of separate affections. The description of these various types of disease is, however, neither uniform in different text-books on the nose, nor do the types stated by authors conform always with actual observation. Perhaps the main reason for these discrepancies is the frequent multiplicity of lesions, so that quite commonly the symptoms of catarrh depend on several different morbid conditions co-existing in the nose.

My object is to classify the different lesions which make up this composite picture of catarrh. On the basis of many years' personal observation I wish to describe those types of morbid changes which constitute each a separate disease entity. Although these are often found in combination I shall base my description on cases which present the least number of lesions and hence the purest type of each disease.

The different lesions which simply or in combination make up the clinical picture of chronic catarrh may be grouped as follows: 1, enlargement of cavernous tissue; 2, simple nasal catarrh; 3, nasal suppuration, localized in nasal passages, accessory cavities, or the pharynx; *a*, rhinitis sicca anterior (perforating ulcer); *b*, ozena or atrophic rhinitis; 4, hypertrophic inflammation of mucous membrane and adenoid tissue; 5, septum deformities in the form of deflection, articular expansion or callus formation.

1. *Enlargement of the venous plexus* in the mucous membrane occurs in connection with all (except the atrophic) forms of nasal disease, but may exist in a nose not otherwise diseased at the time. It hence deserves to be described as a separate lesion. Its significance depends less on the permanent increase of vascular tissue than on its periodic dilatation under the influence of various stimuli. These periodic changes of turgescence cause the variable obstruction or even occlusion in nasal diseases. Except in acute inflammations the vascular distension is only one-sided at a time; but alternating. The area where the veins are massed in the form of distinct cavernous tissue is the front region of the inferior turbinal and the posterior ends of all the turbinals. Enlargement of the cavernous tissue is not identical with hypertrophy of the mucous membrane and can be distinguished from it by the compressibility on pressure with the probe and by the contraction under the influence of cocain. It may, however, co-exist with moderate tissue hypertrophy.

The influence of the vaso-constrictor nerves upon the cavernous tissue is sometimes shown by its contraction under the effect of anxiety during an examination. Whether there are also vaso-dilator nerves is not known. Although enlargement of the cavernous bodies is mostly but a concomitant condition in other nasal diseases, yet it is sometimes found where no other lesion can be detected, especially in hay fever. As far as can be learned clinically, it is the result of often repeated attacks of acute inflammation in subjects with unstable nervous systems. Indeed vascular dilatability is the direct expression and, to some extent, a proportionate index of a neuro-pathic condition. In extreme instances sudden engorgement with sneezing and profuse watery flow simulates attacks of true coryza, but its non-inflammatory nature is shown by the short duration of the spell, as well as by the absence of corpuscles in the clear discharge.

2. *True nasal catarrh* is characterized by catarrhal secretion, a thick, viscid, turbid fluid, containing enough cells to make it appear whitish or gray, but not yellow or green and not at all purulent. In cities the discharge is commonly stained by inhaled soot and dust. This discharge flows over the soft palate and drops into the throat or is dislodged by forcible expirations which vibrate the palate. It is not blown out of the nose. Nasal discharge blown into the handkerchief is either purulent or a sudden flow of clear transparent mucus in consequence of acute irritation. Although nasal catarrh, described by the patient as a "dropping in the throat," is the most common form of

nasal disease in this climate, I do not know of any accurate description of it in literature. It is usually classified as chronic hypertrophic catarrh, but the description does not conform to the reality. Various forms of hypertrophy frequently occur with true catarrh, but they are not a constant and hence not an integral factor. In uncomplicated cases of true catarrh there are no gross lesions visible to the eye. Yet I do not know of any author who has defined chronic nasal catarrh in this manner.

What, then, is the pathology of simple chronic catarrh? In those few instances in which it can be traced from its beginning, it is found to be the sequel of an acute coryza. Moreover, it is always intensified when the patient passes through a fresh acute nasal inflammation. This history suggests that it is due to a persistence of chronic inflammation. As far as can be learned clinically, the process is localized in the posterior and lower part of the nose. But in the pure type of the disease the inflammation does not reveal itself by either redness or swelling of the mucous membrane, at least as seen during life by anterior or posterior rhinoscopy. In view of the fact that the catarrhal secretion persists in some patients for many years without being followed by any visible tissue alterations, the term hypertrophic catarrh does not seem appropriate. Moreover, the hypertrophic areas which are often found associated with simple catarrh are not necessarily the source of any secretion.

Bosworth has emphasized that an important factor in nasal catarrh is stenosis of the nasal passage, especially when due to irregularity of the septum. The amount of catarrhal secretion and the annoyance to which it gives rise are more or less proportionate to the narrowness of one or both sides of the nose. But I can not accept Bosworth's view, that the secretion is the direct consequence of the stenosis. Stenosis of variable degree may exist by itself without nasal catarrh or secretion, especially in young persons under about 16 years of age, in whom nasal catarrh is quite rare. Adults, however, who have nasal stenosis, quite commonly acquire catarrh in addition, which proves persistent. On the other hand, I have observed chronic catarrh in noses which were not at all stenotic. The only method of estimating nasal stenosis is to listen to the sound produced by breathing through one side at a time. A normal passage allows the air to pass in and out without any sound whatever, while interference with respiration gives rise to a noise which varies from a gentle blowing to a sharp hiss. I regard stenosis as an important determining condition, which favors the persistence of chronic inflammation in the posterior parts of the nose, but not as an indispensable factor in catarrh. All operative procedures against stenosis relieve the catarrh in proportion to their mechanical influence upon the caliber of the nasal passage. Of similar importance are the transient occlusions due to vascular engorgement; hence removal of excessive cavernous tissue by snare or cautery is a valuable remedial measure in suitable cases.

The surgical cure of stenosis does not cure the catarrh. The secretion, though much diminished, still persists. As the patient feels very little annoyance from this when the nose is freely patent, he is generally satisfied, but the catarrhal secretion is there. I know of no method by which we can absolutely cure chronic nasal catarrh; it may however disappear in the course of time or under favorable climatic influences in noses without stenosis, or after successful operation for stenosis.

3. *Nasal suppuration* is separate and distinct from nasal catarrh. Its secretion is pus diluted with more or less mucus, and chronic pyogenic infection always involves a possibility of mischief by extension. The source of the pus may be in the nasal passages, in the accessory sinuses or in the pharynx. Gruenwald has shown clinically that chronic suppurative inflammation in the nose is usually not a diffuse process, but localized in some small area. In many of his cases he claims to have found caries or superficial ulceration of the bone as the lesion which explained the persistent suppuration. I have seen very little confirmation of this part of Gruenwald's view and I do not think that the information which he gets from the use of the probe is as trustworthy, regarding bone disease in hidden parts of the nose, as he claims. I also do not admit the existence of Woakes' necrosing ethmoiditis as a common lesion in nasal suppuration. My doubts are fully confirmed by the recent pathologic studies of J. N. Mackenzie and of Hajek. In seventeen amputated fragments of the middle turbinal, in the class of cases attributed by Woakes to necrosis, Hajek did not find bone destruction, anatomically, in a single instance. Destruction of bone does, however, occur in some of the more severe forms of suppuration of the accessory cavities, but such cases are relatively rare. The more common cause of osseous necrosis is syphilis in its late manifestations. A purulent discharge may also be due to foreign bodies and concretions in the nasal passages. Another cause for the persistence of purulent inflammation is the lodging of pus in various recess-shaped areas and in such regions where accidental configuration favors a damming up of pus; by reason of such imperfect drainage, acute attacks of coryza lead to the persistence of localized suppurative inflammation.

While disease of the accessory sinuses was considered scarcely more than a surgical curiosity until some ten years ago, anatomic work by Harke, E. Fraenkel and others has shown the frequency of acute affections at autopsies. Probably most of the milder acute cases escape clinical detection and heal spontaneously, but the more our methods of diagnosis become perfected, the larger do we find the proportion of diseased nasal accessory cavities as the source of nasal suppuration. It is beyond the scope of this paper to discuss the methods of diagnosis and treatment. While the more severe "text-book" cases of sinus suppuration can now be readily recognized, it often taxes the patience and ingenuity to determine the source of pus in the less pronounced forms. In the milder forms of even chronic suppuration from the frontal, ethmoid or sphenoid sinus, a cure can sometimes be obtained without surgical exposure of these cavities, if by minor surgical intranasal measures we can improve the drainage.

Pus secreted in the nose, the ethmoid cells or the sphenoid sinus may flow into the pharynx, as well as out of the nose anteriorly, where the configuration of the passages favors the flow toward the rear, but pus in the pharynx may also be formed in this space itself. Its source, in such cases, is the inflamed adenoid tissue at the roof, the pharyngeal tonsil. Mere enlargement of the adenoid tissue does not necessarily cause suppuration; the tissue must be besides in a state of inflammation. An enlarged pharyngeal tonsil does not suppurate continuously, although it does

so very often. On the other hand, there may be purulent inflammation at the pharyngeal vault without enough hypertrophy to cause the symptoms of obstruction.

In certain cases the morbid discharge formed at the roof of the pharynx dries in the form of adherent crusts. As a rule, we find in such instances only a slightly thickened layer of adenoid tissue. Sometimes the secretion issues from clefts in the adenoid tissue, the surface of which appears healthy. Whether some of these instances are not cases of ozena localized in the pharynx, is an open question.

3*a*. *Rhinitis sicca anterior of Sieberman*, a special form of nasal suppuration, is a disease limited to the anterior lower part of the surface of the septum. In this affection (usually one sided) the discharge forms a thin adherent scab on the septum, without any odor. Characteristic of the disease is the viscid secretion which, while scant and purulent, dries in so firm a manner that it can not be detached without injury to the epithelium, hence its removal leaves an abraded surface. A further peculiarity is the extensive hyaline degeneration of the involved mucous membrane. (Ribari). This form of disease causes but little subjective annoyance, but it is a frequent source of recurrent nose-bleed. More important, however, is the possibility of ulceration of the septum, for there can be but little doubt that the perforating ulcer of the cartilaginous septum is the occasional consequence of this disease, if not controlled by treatment. This typical form of ulcer has certainly no relation to either tuberculosis or syphilis.

3*b*. *Ozena* is another variety of suppurative inflammation of specific character. It is characterized by progressive atrophy of the mucous membrane and turbinate bones, and by a thick purulent secretion drying in crusts, which when allowed to remain give rise to a characteristic fetid odor. The peculiarities of this disease are so pronounced that most observers consider it as a separate affection, but its pathology is not yet clear. The older view, now almost discarded, that it is the terminal stage of hypertrophic inflammation, is unfounded. No one has seen the transformation of a pronounced hypertrophic rhinitis into an atrophic stage. Hypertrophies are common, ozena is relatively infrequent. Moreover, it usually begins in early life. Ozena occurs more commonly in relatively short and wide nasal passages, as Hopman has shown, while hypertrophy is favored by stenosis.

Ozena has been ascribed by Michel, and especially by Gruenwald, to suppuration of accessory cavities, or to circumscribed nasal foci of suppuration. Against this view it can be urged that autopsies have shown that the sinuses are not always involved, but that the greater extent of the mucous membrane is diseased. Undoubtedly sinus suppuration is a frequent and important complication in ozena, but it is only a complication, and one not always present. The microscopic changes in the mucous membrane are, flattening of the epithelial cells and fatty degeneration extending into the mucous glands. The inflammatory nature is shown by round cell infiltration, while fibrillary sclerosis of the mucous membrane leads ultimately to its shrinkage and to atrophy of the bony structures.

The symptoms and course of ozena suggest as its cause some specific microbe. A well characterized bacillus has been described by Loewenberg and studied by Abel, yet in view of the occasional occurrence of this bacillus without ozena, and in the absence of conclusive inoculations, its etiologic role can not be called well established. It is probable that the odor of the discharge is a secondary feature, due to the proneness of this peculiar pus to a certain form of decomposition, for by treatment the odor may be removed even without a complete cure. There is, moreover, a form of atrophic purulent rhinitis identical in course with mild ozena, but without the presence of odor.

4. *Hypertrophic inflammation* is described separately from simple nasal catarrh, as I do not consider the two affections identical. Many cases of catarrh are not accompanied by any hypertrophy, while hypertrophies are sometimes seen without catarrhal secretion. Moreover, when the two conditions co-exist the areas of hypertrophy are not necessarily the source of the secretion. We must distinguish between hypertrophies of mucous membrane and of adenoid tissue.

Hypertrophy may involve diffusely the mucous membrane of the inferior and middle turbinal, or may be circumscribed in small areas in the form of tumors. Diffuse hypertrophy can be easily distinguished from mere enlargement of the cavernous tissue by the relative incompressibility and the persistence of the thick cushion after the use of cocain. The hypertrophied membrane is usually pale in color, rarely injected. A peculiar appearance is presented when hypertrophied mucous membrane is edematous; it then appears jelly-like and pellucid. This has been incorrectly termed myxomatous degeneration. The edematous condition, however, is shown by the great shrinkage of excised pieces when placed on blotting paper. Diffuse hypertrophic inflammation gives rise to no symptoms beyond those dependent upon the stenosis which it may produce.

Circumscribed hypertrophies assume various shapes according to their site. On the front end of the inferior and the inferior edge of the middle turbinal they appear as flabby overgrowth. Along the middle of the inferior concha and sometimes on its posterior end the tumors are papillomatous in gross appearance, often resembling raspberries in shape and color. On the posterior ends of inferior and middle turbinals hypertrophies are usually associated with cavernous enlargement and present rounded, grayish, gelatinous looking masses which may seem wrinkled when partly collapsed, but bag-like and bluish when engorged. A form of hypertrophy which has been described by some of the older writers (Solis Cohen and Voltolini), but which is very little mentioned in recent literature, is in the form of a grayish cushion on the surface of the septum close to its posterior edge. The best known growths however are polypi, which spring from the external wall in or above the middle meatus, or from one of the surfaces of the middle or superior turbinals. It is not correct to call these tumors myxomata or fibromata. They are histologically the equivalent of any other form of inflammatory hypertrophy of the mucous membrane. The gelatinous polypi differ from the denser fleshy tumors only by their state of edema. There are however other polypoid tumors which are histologically different, sometimes mixed angiomata, sometimes malignant growths of polypoid shape.

The causes of hypertrophic inflammation are not fully known. In the case of polypi, suppuration, especially of the accessory cavities, is often a demonstrable etiologic factor, but this is not always the case. In some instances it can be observed that acute

inflammation is the determining condition, which is perhaps best shown by relapses of circumscribed hypertrophies in cases under continuous observation. In many instances, however, we do not understand why chronic inflammation persists and why it leads to overgrowth of mucous membrane.

Hypertrophy of adenoid tissue differs from the conditions just described, first, by its location, as it occurs only in the pharynx. It presents, moreover, this difference, that while of inflammatory origin at first the enlarged adenoid tissue, at least of the pharyngeal and faucial tonsils, is not necessarily in a continuous state of inflammation. This distinction is based on clinical data; whether it could be demonstrated histologically in adenoid tissue is perhaps questionable. We may thus observe tonsils which are enlarged, but pale, and cause no irritation for long periods of time, while in others the tonsils show by their congestion and liability to acute troubles that they are the seat of persisting inflammation. In the case of the pharyngeal tonsil the same differences may be observed, with the additional criterion that the enlarged but non-inflamed adenoid tissue in this location secretes only the normal clear mucus, while when inflamed it produces pus.

The most striking forms of adenoid hypertrophy are enlargement of the pharyngeal and the faucial tonsils. As far as etiology can be studied clinically it is evident that the over-development of adenoid tissue is the result of acute attacks of nasal inflammation. Where suitable opportunities are offered it can be observed that children with hitherto unimpeded nasal breathing get the characteristic stuffiness due to adenoid vegetations after severe attacks of coryza. The close relationship between nasal inflammation and the faucial lymphatic tissue is also shown by the not uncommon occurrence of acute tonsillitis from infection of intranasal wounds on the same side. Undoubtedly a certain predisposition favors the enlargement of the lymphatic tissue. This is suggested by the frequency with which it occurs in certain families and its absence in others. Clinical observation, too, suggests some relationship between hypertrophy of the pharyngeal tonsil and tuberculosis, but lymphatic enlargement is not a tubercular manifestation by itself, although various recent German and French observers have found that enlarged tonsils, both pharyngeal and faucial, may get tubercular by secondary infection, in perhaps one-sixth of all instances. This adenoid tuberculosis can not be recognized clinically, it is entirely latent. The common text-book statement that enlargement of the adenoid tissue is a manifestation of scrofula is very vague. It is more definite to say that some of the scrofulous appearances, the thick lips, the sub-acute catarrh, the eczema under the nose and the suppurative middle ear inflammation are the direct results of enlarged pharyngeal tonsils.

Besides, in the tonsils, hypertrophy of the lymphatic tissue may show itself as enlarged lingual tonsil, as separate follicles on the phayngeal wall, and as thickened columns of adenoid tissue in the posterior lateral corners of the pharynx. In all these locations the hypertrophied tissue is usually in a state of inflammation and the source of decided discomfort. I have, however, not been able to satisfy myself that purulent secretion is produced in any locality except at the roof of the pharynx and by the lymphatic tissue over the root of the tongue.

The term chronic pharyngitis has hitherto been used in a loose manner and often inappropriately. There is, however, a condition which fully deserves this name. It is characterized by persistent redness and thickening of the mucous membrane of the pharynx and annoys the patient mostly by the tendency to nausea and retching on slight local irritation. It occurs always in connection with some form of chronic nasal suppuration. Another potent etiologic factor, although not an indispensable one in this affection, is the abuse of tobacco and alcohol. It is hence rarely seen in women. On the basis of clinical data, I consider this affection as a diffuse inflammatory hypertrophy of the adenoid tissue which underlies the pharyngeal mucous membrane.

5. *Deformities of the septum* may be classified under three heads: *a*, deviations; *b*, articular expansions; *c*, callus formations.

a. Moderate curvature of the septum is so common that it can not be considered morbid. It is only an unfavorable structural peculiarity. Moreover, uncomplicated deflection of the septum, without additional malformation, causes stenosis only in narrow noses, where there is less than the average width between the two external walls. We know nothing definite concerning the conditions which lead to asymmetry. It is evidently the result of unproportionate growth of the septum and the bones with which it articulates. The deflection of the curved septum may be either horizontal or vertical, or exist in both planes.

b. The most common clinical malformations of the septum are projecting spurs, ledges or ridges, often but erroneously, termed exostoses. According to Zuckerkandl's extensive dissections, they are formed by overgrowth of the articulating surfaces of the various plates which make up the septum. The term articular expansion seems, therefore, an appropriate one. It is especially the strip of cartilage which persists during adult life on the upper border of the vomer, which expands. Being surrounded by bony walls this cartilaginous hypertrophy thus forms the nucleus of a bony projection on the side of the septum, while occasionally secondary ossification of the cartilaginous strip adds to the solidity. The usual site of these crests is along the upper border of the vomer, running in an oblique direction upward and backward toward the sphenoid sinus. A similar formation is found less commonly as a vertical ridge between the quadrangular cartilage and the perpendicular plate of the ethmoid. Such one-sided expansions are not rarely combined with deflection of the septum, which then presents an angular depression on the concave side and a protruding spur on the convexity. This malformation is often mistaken for a healed fracture.

c. Fractures of the septum are not common. It is doubtful whether they are possible without fracture of the bridge of the nose, and unless a characteristic flattening of the bridge is recognizable, the diagnosis of broken septum is questionable. Fracture of the septum usually leaves considerable deformity on account of the displacement and overlapping of the fragments.

The importance of deformities of the septum hinges largely on the stenosis which they cause. This in turn depends on the relative width of the nasal passages. Even when the nose appears normally patent during examination, transient stenosis may still exist during periods of engorgement of the cavernous tissue. But stenosis itself is not a disease. It is only

an important anomaly which predisposes to the persistence of chronic inflammation.

Irregularities of the septum may play a morbid role even without reducing the capacity of the nasal passage. An irregular septal surface favors chronic inflammation, perhaps by impeding the flow of morbid secretions. Hence, successful operations of septal deformities often prove of service even where no stenosis existed. They are not rarely the starting point of morbid reflexes, especially when the spurs are sharp, or when they come in contact with the surface of the turbinals.

For these various reasons operative treatment of septal deformities is often indicated and in the case of extensive malformation it is usually satisfactory. But the minor irregularities, and especially the deformities due to moderate septal deviation, are not se easily benefited mechanically. The novice can not be too strongly warned against attempting operations indiscriminately, as many of these fail primarily for mechanical reasons, or produce but a temporary result on account of relapses.

INJURY OF THE CAVUM PHARYNGEUM; REPORT OF A CASE.

BY EMIL ARONSON, M.D.

DALLAS, TEXAS.

Several years ago, while practicing in Europe I received a call to Mr. D., a gamekeeper, who had sustained an injury from the explosion of a gun In the morning Mr. D. had tried his first experiment with his new gun. While the members of his family were looking on they saw him fall to the ground with blood oozing from nose and ear. He was carried unconscious into the house. After some time he regained consciousness but did not complain of the presence of a foreign body in his throat, yet his family thought it necessary to send for their family physician. This gentleman arrived, examined the throat and stated that except a piece of a tooth which was lodged in the posterior wall of the pharynx, nothing could be found. Promising to return in a day or two to remove that remnant of the tooth he left the house. Other relatives of the injured man, much surprised at the indifference of this gentleman, decided to send for me.

Inspection reveals the following conditions: Upper lip swollen, upper right incisors are missing; some loose fragments are hanging in the alveoli. The palate, the mucosa buccalis, the tongue, uvula and posterior wall of the pharynx are discolored, powder-stained and covered with coagulated blood; on the right side of the posterior wall in the region of the constrictor pharyngeus superior and medius is a mass of indistinct shape and color.

The gun consists of two long tubes which can be attached to each other. After placing the cartridge in one tube, the other tube is screwed on to it. At the end of this long tube the inventor inserted an iron bolt, he put the tube to his mouth and expected that by very forced expiration the bolt could be driven against the cartridge. His calculation failed to prove correct at the first trial. He did not consider that the moment the bolt and cartridge would meet explosive gases would become free, which, if no valve was provided, would drive the bolt back into the mouth of the experimenter.

Although the patient felt perfectly comfortable and there were no symptoms of stenosis, I managed to make out a large, smooth, round, metallic body in the back wall of the pharynx. Trying twice, I failed to grasp this with a long forceps, due to the impossibility of pressing the points of the forceps into the hard iron bolt. I then took a long Langenbeck retractor and using it as a lever removed the bolt, which weighed nineteen grams and was four and a half centimeters long.

I prescribed an antiseptic gargle and directed ice and antipyrin for the intense headache, which appeared in the course of the week. In about ten days the patient was well again. A few conclusive remarks about the direction of the projectile: The upper incisors were struck first and knocked out. The projectile then changed its direction and passed through the oral cavity to become imbedded in the muscles of the pharynx, where it lodged on one of the vertebræ. It is remarkable and of value in regard to diagnosis, how very little pain was felt by the patient, who for more than twelve hours did not believe there was a foreign body in his throat. This case shows how valuable an objective examination is and teaches us not to rely entirely upon the patient's statements or upon the observations of Schroetter (notably, on "Diseases of the Ear," 1876 and 1882), who says that in such injuries of the pharynx the patients always claim to feel the foreign body in the throat.

DISEASES OF THE EYE CAUSED BY DISEASES OF THE NOSE.

Read before the Chicago Academy of Medicine, December, 1897.

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CHICAGO, ILL.

There are no organs of the human body more closely connected than the eye and the nose. No organ suffers more from reflexes than the eye from the nose. The slightest offense to the mucous membrane of the nasal chambers will instantly cause suffering to the eye. Let one come in contact with smoke or other irritants to the Schneiderian membrane and the eye will soon respond to its danger and shed tears. The reason for this is clear, as the eye is directly connected with the nose by the nasal duct, the same mucous membrane, histologically connected, continues to cover the eye lids, the globe and the orbits.

The lachrymal artery with its branch, the anterior ethmoid, supplies blood nourishment to both the lachrymal sac and the nasal duct. The nerve supply is received in common from branches of the ophthalmic nerve and Gasserian ganglion. The lachrymal sac, the dilated part of the nasal duct, is situated in a channel of the nasal process of the superior maxillary and lachrymal bones. Its formation is fibrous and elastic, lined with mucous membrane, continuous with that of the nose. The membrane of the lachrymal sac and canaliculi is lined with pavement epithelium, but in the main duct the epithelium is partly of a cylindric variety. The middle lachrymal organ (Fig. 1) consists of a small double puncta, located from six to eight millimeters from the apex of the inner canthal angle, opening into the corresponding superior and inferior canaliculi, which meet toward the inner canthus in the lachrymal sac.

"The lachrymal secretion is forced through the puncta into the canalicula, then enters the sac and

finally, into the nose through the nasal duct by a combination of winking and the suction force of the Horner's muscle, and possibly of the muscular fibers given off from the orbicularis and the tendo oculi. The canaliculi and puncta, therefore, are not merely drains to carry off the lachrymal secretions, but in conjunction with the muscular fibers mentioned act very much as a suction syringe. These canaliculi are not perfectly straight; the mucous membrane lining them is like that of the nose[1]."

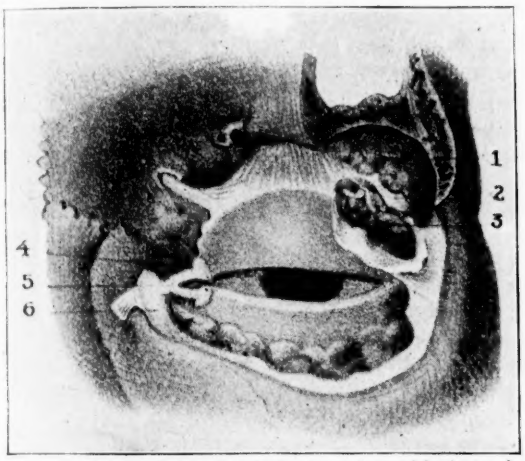

FIG. 1.—1 and 3, orbital and palpebral portions of lachrymal gland; 2, fibrous band dividing the gland; 4 and 5, orifices and branches of the lachrymal canal; 6, lachrymal sac.

The nasal duct, which is about three-fourths of an inch in length, begins at the somewhat constricted portion of the passage where the sac terminates, and extends in an osseous canal formed by the lachrymal superior maxillary and lachrymal process of the in-

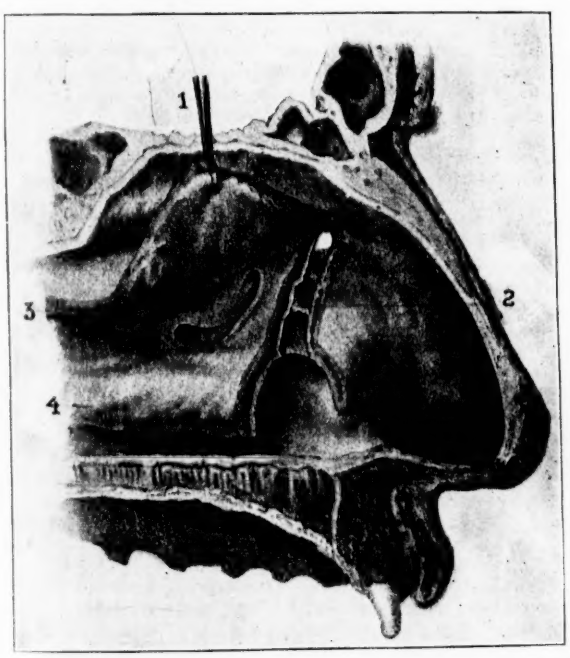

FIG. 2.—1, middle turbinated body turned aside and held by a hook; 2, nasal duct and valves; 3, canal leading to the maxillary and frontal sinuses; 4, inferior turbinated body showing location of the mouth of the nasal duct in the cul-de-sac.

ferior turbinated bone, in a direction differing almost (Fig. 2) in every case that presents itself downward, slightly backward or outward to the inferior meatus of the nose. Hence we have a direct route in the nasal chambers for the passage of morbific germs from the rhinal cavities to the eye, and under certain pathologic conditions the nose becomes a factor for aggravating causes of ocular disturbances. The ordinary blood supply with anastomosis from the duct and sac, and the connected relation of the accompanying veins manifest that certain mechanical or pathologic conditions existing in the nasal chambers may produce pronounced spmptoms in the eye. For example, an irritation of the Schneiderian mucous membrane may produce lachrymation, and more dangerous ocular disturbances often accompany coryza, measles, scarlatina, etc.

"Dr. Edwyn Andrew[2], M.R.C.S., says that the fluid of the lachrymal apparatus is continuous from the conjunctiva to the nose, and by the aposition of the lids to the eyeball and the attraction of adhesion and cohesion produced, a thin layer of tears is brought into contact with the cilia, and by them conveyed to the puncta, where capillary action of the canaliculi brings them within reach of the cilia and the lachrymal nasal canal, which pass them onward through the sac and nasal duct to the nose. This natural course of the tears is, however, easily changed, the power of the cilia is feeble and soon overcome by any increase or altered condition of the fluid in contact. Extra secretion is so easily excited through irritation of the branches of the fifth nerve, which supply the conjunctiva and lachrymal gland, that the whole lachrymal apparatus quickly becomes engorged with fluid, which if persistent, soon produce morbid changes in the adjoining mucous membrane. The irritation thus produced, which soon causes in the open eye change of the natural secretions to muco-pus or inflammation, ulceration, thickening of lids, inversion and eversion, closure of the puncta, etc., naturally becomes still more injurious to the almost pent up cavity of the lachrymal nasal canal, frequently converting it into an abscess, occluding the channel by exudation and causing stricture of the constricted portions, particularly at the entrance of the canaliculi into the sac, and at the junction of the sac and nasal duct."

Having examined the anatomy and physiology of the parts pertaining to the subject I will now proceed to the historical and pathologic comments of the best ophthalmologists of the present day, in addition to my personal observations. I will attempt to show that the eye specialist can not successfully treat the eye without attending to the nose. Foubert invented the lachrymal canula in 1819, on account of obstruction from polypi of the nose, but nothing can be found as to the results in his case, as very little is known of him.

Dr. J. Reeve, in 1821, in the "London Medical Reposit," first called attention to diseases of the eye affected by the nose. In 1859 Chalous[3] wrote on adenoiditis lachrymalis, but gave no description of his treatment except that of sounding and the usual eye water. In 1861 von Græfe[4], in 1862 Carl Schweigger[5], in 1863 Brueff,[6] in 1864 Minkiewiez[7], in 1869 Vassoux[8] and others, only alluded to diseases of the eye caused by diseases of the nasal chambers.

In 1887 Dr. A Blitz[9] reported before the Medical

[1] Dr. Casey A. Wood: International Clinics, 1895, p. 318.

[2] British Medical Journal, Dec. 15, 1883, p. 1185.
[3] Medic. Ztg., 1859.
[4] Archives of Ophthalmology, Berlin, 1861.
[5] Medic. Ztg., Berlin, 1892.
[6] Wratch, 1863.
[7] Goz. Lek., Berlin, 1864.
[8] Reprint from Archives d'Ophthal., 1869.
[9] Transactions Medical Society of Tennessee, 1877.

Society of Tennessee a successful operation of extirpation of hypertrophy of the lachrymal gland extending from the nose, saving the eyeball with complete recovery. In 1878 a wide chasm occurred which can not be overlooked. Wm. Hack of Freiberg, with his renowned monogram, which the world must follow, has shown not only that we have migraine, asthma, hay fever, etc., but that the eye also suffers in consequence of the obstruction of the olfactory canal.

Hack, and many others since his time, have only superficially mentioned the subject until in 1886 Dr. Grenning[10] in an article on "Reflex Ocular Symptoms in Nasal Afflictions," gave the first elaborate description of ocular symptoms caused by obstruction of the olfactory canal, and points out that photophobia may be readily produced by touching certain parts of the Schneiderian membrane with the sound, and *vice versa*, reflex nasal symptoms, for instance, sneezing may be effected by exposing certain eyes to the bright light. The leading ocular symptoms, which in certain cases depend mainly on the pathologic conditions existing in the nose, are lachrymation, photophobia, conjunctival hyperemia, pericorneal injection, smarting or burning and swelling of the lids, phlyctenular disturbanes, epiphora, etc. In addition to the symptoms I have described I recommend as a guide to the ophthalmic practitioner the systemized ocular symptoms, depending upon pathologic conditions of the nose by Dr. Gradle[11], which are as follows: "1, lachrymation without primary lesion of the tear passages of the eye and due to some chronic abnormality of the nasal passages; 2, fulness of the lids and itching, possibly with lachrymation and more or less pain, and with asthenopia especially marked in one eye. Patients with these symptoms aggravated have also a refraction or muscular anomaly; 3, periodic discomfort (itching of the lids), allied to hay fever, or coexisting with conjunctival lesions, at first of the follicular enlargement and finally of a formation of large, flat, yellowish follicular granules which disappear in winter; 4, photophobia, with or without pain in the eyes, these being often blood-shot with little nasal annoyance but with decided itching; 5, injection of the pericorneal vessels together with varying degrees of the above symptoms, chronic and persistent; 6, acute congestion of the lids with irritable nose, erysipeloid in character, subject to recurrence, lasting from two to six days; 7, sudden edema of lids without congestion, the attack lasting a few hours."

I shall now confine the principles of the subject to two classes; first, pathologic conditions of the eye depending on hypertrophies, deformities or mechanical abnormalities of the nose; second, pathologic conditions of the eye resulting from the passage of morbific material from the nose through the nasal duct or intermediate tissue of the eye.

One of the frequent causes of ocular disease is chronic hypertrophic rhinitis, especially in that form in which sudden dilatation of the blood vessels of the mucous membrane is apt to recur from very slight irritation. In such cases we have a copious aqueous discharge from the nose with severe inflammation of the inferior turbinated body, especially marked in the anterior half, associated often with mucous polypi in the middle meatus. Eye symptoms occurring with this condition of the nose are lachrymation, photophobia, burning and smarting of the lids with deep injection, particularly marked at the margin, and not infrequently ciliary and conjunctival injection. Polypi of mucous region situated so as to form a wedge between the septum and inferior turbinal, or situated so as to fill the superior meatus, give rise to persistent ocular lesions; deviated septum, spurs, fissures, post-nasal adenoids and synechiæ play an important part in the production of sympathetic ocular conditions.

Dr. Charles Michael describes a case of ectropion of both lower lids caused by complete obstruction of the right and left lachrymal passages, which was operated upon by him in a manner not found in the text-books or reported in literature. He says the patient was 62 years of age. There had been complete obstruction of the passages for periods of ten and twenty-eight years respectively. Dr. Michael received the idea of the operation in Paris in 1859, but did not bring out his method until 1871. For ten years he continued it and was successful in every case. He gave up the old method of introducing a canula, and believed that the only correct method of treatment of obstructed lachrymal passages was to clear the nasal cavity and secure a permanent dilatation between the nares and lachrymal duct, so as to allow a free exit of the secretions coming from the conjunctival surface and lachrymal canal.[12]

Bishop cites a case of amblyopia of the left eye cured by the removal of an osseous synechia between the left turbinated bone and the nasal septum.[13]

Dr. Bettman[14] reported a case of constant epiphora, which he cured by extirpating the hypertrophied tissue of the anterior portion of both turbinated bones.

The six cases reported by Hamilton and quoted by Gould are as follows:

Case 1.—Empyema of the antrum and unilateral hypertrophic rhinitis of the left side attended with the following eye symptoms: 1, concentric contraction of the visual fields for all colors; 2, accommodative asthenopia; 3, retinal hyperesthesia; 4, photophobia with blepharospasm and interorbital neuralgia. The evacuation of the empyema and its cure were speedily followed by the disappearance of the eye symptoms.

Case 2.—Ecchondrosis of the triangular cartilage and chronic rhinitis. This case was attended with the following eye symptoms: 1, asthenopia; 2, pain in the eyeball; 3, injection of the eyes when used for close work; 4, blepharospasm; 5, contractraction of the visual fields. These symptoms disappeared on removal of the growth.

Case 3.—Bony septum causing chorea, the following eye symptoms were present: 1, asthenopia; 2, subjective color sensations; 3, sneezing; 4, contraction of the visual fields. These symptoms disappeared on removal of the spine of the septum.

Case 4.—Advanced chronic atrophic rhinitis with middle turbinate hyperplasia. The following eye symptoms were present: 1, asthenopia; 2, lachrymation; 3, puffiness of the lids; 4, contraction of the visual fields. These symptoms were relieved by the treatment of the nasal condition.

Case 5.—Syphilitic ozena. The following eye symptoms were present: ("Transactions of the Intercollegiate Medical Congress of Australasia," 1889, Vol. ii, p. 779) 1, asthenopia; 2, lachrymation; 3, pericorneal injection on using the eyes; 4, contraction of the visual fields, which was temporarily removed by the use of amyl nitrate. These eye symptoms were ameliorated as the nose improved.

Case 6.—Polypi, nasal and naso-pharyngeal, with eye symptoms similar to those recorded.[15]

Polypi or vegetation, either in the superior or anterior nasal cavities, will ofttimes produce that peculiar deformity known as "frog face." When the nose becomes widened between the eyes and they protrude, the lids become granulated and drooped as seen in mouth breathers. Pressure on the upper part of the nasal duct

[10] Archives of Ophthal., 1886.
[11] Archives of Ophthal., 1887.
[12] St. Louis Courier of Medicine, Vol. vi, p. 80.
[13] Bishop on Diseases of the Ear, Nose and Throat, p. 284.
[14] Journal American Med. Assn., May 7, 1887.
[15] Burnette: System of Medicine, p. 169.

produces epiphora and sometimes conjunctivitis, which can only be cured by the removal of the obstruction and the restoration of the nose to its normal condition. Catarrhal conjunctivitis I find to be nothing but a reflex from nasal catarrh. Especially if the patient is of a catarrhal diathesis, a mere simple coryza of the nose will produce an inflammation of the mucous membrane of the inner surface of both eyelids, and will be reflected upon the ocular conjunctivæ. Abnormal developments of the ethmoid or sphenoid markedly affect the functions of the ocular muscles or the acuteness of vision. Over-development of the ethmoid, especially in the anterior portion, will sometimes produce complete stenosis of the upper part of the nasal duct, and there is epiphora from pressure; following this we get blennorrhea of the lachrymal sac and possibly dacryocystitis. Abnormal development of the posterior portion of the ethmoid may produce widening of the inter-orbital space, displacement of the origin of the internal recti muscles, with high degrees of astigmatism and occasional divergent strabismus following. Over-development of the sphenoid may, by pressure of the optic nerve, produce permanent atrophy limitation of the field of vision and partial or complete color blindness. Hypertrophies, polypi or tumors in the superior nasal sinus may produce temporary blindness or high degrees of amblyopia, which are ameliorated or cured by the removal of the obstruction.

Dr. Edward Nettleship[16], F.R.C.S., ophthalmic surgeon St. Thomas Hospital and Royal Ophthalmic Hospital, London, reports a case of a woman 50 years of age, who fell on her head (probably on her face). Vision failed about two days after the injury. She was unable to count her fingers with the right eye. Six days later hemorrhage of the nose set in. In twelve days the vision began to improve rapidly and fully recovered in four weeks.

The eye is rendered liable to infection from disease germs of every description that may find access through the lachrymal channel (Fig. 3), from the nose afflicted with diseases such as ozena, hydrorrhea, atrophic rhinitis, hypertrophic rhinitis with aqueous discharge, gonorrhea, syphilis, diphtheria, measles or scarlatinal deposits, etc. The conjunctiva is a very delicate and sensitive membrane, and easily yields to an attack of morbific germs. These sometimes gain entrance to the eye by direct migration, but are frequently forced into the eye by blowing the nose, sneezing and not infrequently by the use of the Politzer air bag, or by Butler's inhaler. The cul-de-sac of the inferior turbinated body is the receptacle for the collection of material which is, or becomes decomposed, and finds its way or is forced into the lachrymal sac and to the conjunctiva many times followed by blenorrhea, conjunctivitis, phlyctenular keratitis or ulcer of the cornea, which will not yield to treatment until the origin of the disease in the nasal cavity has been corrected. In specific diseases the lesions of the lachrymal organs including the canalicula, dacryoma in the nasal duct is usually found. Dacryocystalgia and purulent lachrymation may be caused by periostitis of syphilitic origin.

Dr. Bull[17] says, "It is not common to meet with a purulent dacryocystitis, unless there is present disease of the periosteum or endosteum of the nasal duct, or carious disease of the bony canal of the lachrymal bone. In some cases it is possible that the focus of the disease started in periostitis or endostitis of the nasal duct of constitutional syphilis, and spread to the mucous membrane lining the duct and sac, thus causing the dacryocystitis."

Syphilitic infections in the nose may be hereditary or acquired, yet they do similar mischief, very frequently causing obstruction by incrustations, yet there are other phases of lachrymal inflammation and obstruction, as described by Dr. David Harrower, who says, "obstruction of the duct may come from inflammation of the mucous membrane in the nose, simple chronic catarrh from a scrofulous or syphilitic origin. The swelling of the mucous membrane may extend by continuity to the mucous membrane of the duct. In the ordinary forms of ozena there is no swelling but cicatricial contraction of the nasal mucous membrane, which may lead to the constriction of the inferior orifice of the duct. Ulcers of the mucous membrane and polypi are also causes of obstruction of the nasal ori-

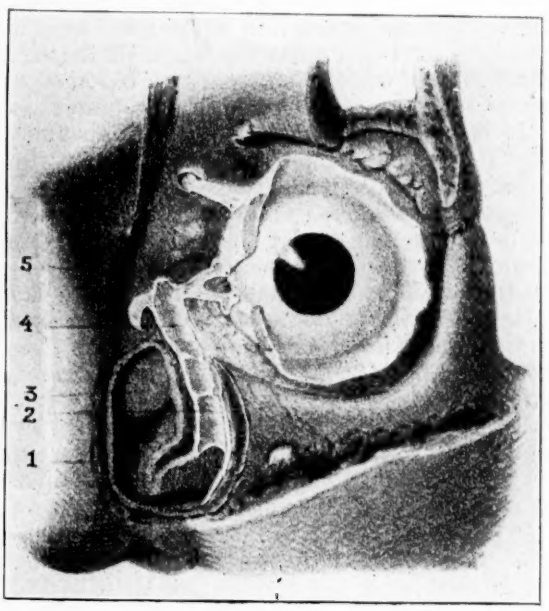

FIG. 3.—1, inferior turbinate bone; 2, nasal duct and valves; 3, middle turbinated body; 4, lachrymal sac; 5, lachrymal canaliculi and their orifices.

fices. The course is long, often extending years, if nothing is done for it; the secretion that at first was purulent becomes mucous and viscid, the mucous membrane may atrophy and the distended sac contain nothing but tears. The epiphora still remains. A person suffering from this chronic form may have an attack of acute inflammation suddenly develop. The skin over the sac becomes reddened and greatly swollen, the swelling often extending to the lids and to the conjunctiva, which may become chemotic. There is generally a great deal of pain, so much so that the patient is deprived of sleep. After a few days the skin at the apex shows a yellowish point and becomes perforated. The pus discharges and the swelling gradually disappears. Afterward pus followed by mucus, and later tears, are discharged. As long as this fistula remains open the patient is safe from another attack, but if it closes up a recurrence may ensue."[18]

In the spring and autumn of the year the attention of the practitioner is attracted by the number of chil-

[16] London Ophthalmic Review, 1895, Vol. xiv.
[17] Transactions of the Medical Society of the State of New York, 1882, p. 156.
[18] Boston Medical and Surgical Journal, July 29, 1897.

dren who present themselves with corneal ulcers or phlyctenular troubles usually attended by nasal disorders. In such cases there is great congestion of the turbinates, profuse watery discharge, and formation of crusts in the nostrils, the sores extending down on the upper lip. The eye symptoms are persistent and attended by lachrymation and increasing photophobia, which resist local treatment until the nasal affection is cured.

Among the most common ocular troubles caused by diseased conditions of the nose, as of the lachrymal apparatus, although we have many cases of lachrymal trouble which are in no way influenced by conditions in the nose, yet are caused by the passage of germs from the eye through the canaliculi to the lachrymal sac or the nasal duct. We may have stenosis of the canaliculi situated at any place between the puncta and the opening into the lachrymal sac. We then have epiphora as an early symptom, followed sometimes by a contraction or atrophy of the lachrymal sac, but more frequently dilatation and blenorrhea. When the stenosis is situated in the nasal duct below the sac we have abnormal dilatation of the sac, and accumulation of secretion which soon becomes mucopurulent. In these cases, also, the prominent symptom is epiphora, and we may have, following this, conjunctivitis and dacrocystitis. Atrophic rhinitis with fetid discharge is most frequently the cause of lachrymal disturbances. The germs pass through the canal to the sac and remain there, the nidus of infection, until the disease is established. Empyema of the antrum of Highmore may be the cause of lachrymal disease, as the contents of the antrum may enter the nasal duct directly, or purulent secretion from the antrum may pass from the nose through the nasal duct to the sac.

I have now exhausted the literature on ocular disturbances from nasal disease, and I will venture to assert that more than one-third of external ocular diseases have their predisposing cause in the nasal cavities. Hence, I recommend a treatment plain and simple—remove the cause and you have cured the disease. If the disease is traceable directly to pathologic conditions existing in the nose, then it should receive proper treatment, in conjunction with the treatment of the ocular disturbance. If the epiphora is due to stenosis in the canaliculi, occlusion of the puncta, blepharitis, eversion of the puncta, etc., these conditions must be remedied. When the lachrymal sac is filled with acrid or muco-purulent discharge, it should be evacuated by means of firm pressure of the thumb or finger on the sac, pressing the retained secretion out through the puncta, after which the canal should be probed and washed out. In order to introduce the probe or the syringe nozzle the puncta must be enlarged. This may be done by introducing the canaliculus knife into the canaliculi to the nasal bone, the cutting edge being turned toward the eye, and by retracting the lid with the thumb, and drawing the knife out, make a small incision in the punctum, perpendicular to the palpebral fissure, large enough to insert the end of a syringe or Bowman's No. 8 sound. This operation maintains the integrity of the canaliculus, and the pressure of the lids on the eye tends to keep the edges of the wound apart and prevents adhesion and subsequent closure.

For washing the sac I have derived great benefit from the following solution:

R. Fl. ext. hydrastis.	ʒ iss	44	36
Zinci sulphat.	gr. iv		26
Aquæ destil	q.s. ad ʒii	59	14

To be injected with the lachrymal syringe every alternate day, the solution as hot as the patient is able to bear. If this or other conservative treatment fail, the obstruction can be relieved by surgical methods, which can be found in any of the ophthalmologic works of the present day.

In conclusion I will quote a few cases where I have successfully cured or relieved the eye symptoms by treating the nasal cavities and giving the eye little or no attention.

Case 1.—Mrs. G., aged 34, consulted me Oct. 15, 1894, on account of a spot on her eye, visible to herself (metamorphopsia). The eye was normal for refraction, the lids were red and slightly swollen. No muscular disturbance. The nose revealed extensive hypertrophy of both inferior turbinates with profuse mucoid discharge.

After the hypertrophies were reduced the lids cleared up and the spots that had been visible to her disappeared.

Case 2.—Mr. H., bookkeeper, age 30, consulted me September, 1895, for severe blennorrhea. Blurred vision and unable to continue work. Wore glasses for correction for ¼ D. Hypertrophic astigmatism, axis 90 in each eye. Examination of the nasal passages showed polypoid degeneration of the left inferior turbinate with two very large polypi, with pedicles attached in the middle meatus. On the right side were found two polypi and a large cartilaginous spur from the septum encroaching on the anterior third of the inferior turbinate. The cul-de-sac of the turbinate was filled with decomposed secretion. I removed all the obstructing difficulties of the nasal chambers, and three months after treatment the patient was discharged cured, and up to the present time has had no further return of the eye difficulties.

Case 3.—Mrs. S., age 26, consulted me November, 1895. An ulcer of the cornea of the left eye had been treated locally the preceding two months, with little or no result. Examination of the nose showed a long fissure on the right side of the septum and extensive posterior synechia. After surgical and medical interference in the nose, the ulcer quickly yielded to treatment. Patient was discharged well.

Case 4.—Miss K., school girl, age 15, consulted me February, 1896, on account of epiphora and blurring of vision. On examination I found the vision O D and O S $^{20}/_{20}$ each, without astigmatism. In the nose I found large polypi in the middle meatus with long ridge on both sides of the septum. On the right side of the septum a fissured ridge badly irritated. The cul-de-sac of each inferior turbinate was filled with thick yellow secretion that could not be blown from the nose by the patient. I removed the polypi, thoroughly cauterized the turbinates and locally treated the irritated ridges. The patient soon recovered and has been able to renew her studies without further trouble with the eyes.

Case 5.—Miss F., age 14, March 10, 1896, complained of constant severe frontal headache, shooting pains in the eyes. Examination of the eyes showed them to be nearly emmetropic, vision in both eyes being $^{20}/_{15}$, or a little better than normal, with perfect co-ordination of muscles. Upon examination of the nasal passages I found abundant post-nasal vegetation. Ten days after the removal of the adenoids patient was free from headaches and pain in the eyes, and has had no recurrence of the symptoms.

Case 6.—Mr. S., aged 33, occupation locomotive engineer. Was discharged from the service on account of color blindness. He was unable to distinguish red and green. There was no manifest lesion of the eye, fundus and refraction normal. Examination of the nose showed marked hypertrophy of the middle turbinates, and adhesion of the left middle turbinate and septum. I removed the left middle turbinate and cauterized the right, reducing it sufficiently. The color blindness began gradually to disappear, and in a period of four months the patient was able to successfully pass re-examination, and obtain his old position, which he now holds.

NOTE.—Cuts taken from the author's article entitled, "The Relation of Diseases of the Eye to Diseases of the Nose," in S. A. Bishop, on "Diseases of Nose, Throat and Ear."

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DISCUSSION.

Dr. HENRY GRADLE.—The statement that "about half of the external diseases of the eye have some connection with prior anomalies of the nose" is decidedly at variance with the

statistics I have gathered from my own experience. It is a very small proportion in which the nose plays any role at all. Two cases were quoted which seem to be open to serious doubt unless supported by much more detail than the brief synopsis given. One was ulcer of the cornea. I do not think it has ever been noticed by anyone before that ulcers of the cornea are in any way kept up by intranasal conditions. Indirectly an intranasal disease may lead to ulceration of the cornea, the infection may be conveyed through the fingers to the eyelids and conjunctival sac, or in some cases the infection spreads from the nose to the sac, leading to dacryocystitis. In either case the infection of the cornea having been started, the remote cause no longer has any influence over it. I have not seen anything suggested by actual experience which would show that nasal treatment would influence the course of corneal ulceration. Another instance was quoted, namely, color blindness having been relieved by intranasal treatment. Color blindness, as far as we can judge, is purely a psychic phenomenon. No one has demonstrated that there is a any anomaly of the eye. It is not an acquired thing. Outside of disease of the optic nerve it is a psychic occurrence, and how that could be induced by intranasal anomalies has not been shown by the experience of anyone else. Undoubtedly there are quite a large number of important troubles of the eye which owe their origin to the nose. To those which he has mentioned I might add two varieties. One is the production of iritis in consequence of intranasal suppuration. My attention was called to it by Ziehme, who claimed to have seen it produced by antral suppuration. I have the records of four patients with recurrent attacks of iritis, most of the attacks being distinctly preceded by purulent rhinitis, limited to one side, and the corresponding side of the nose was structurally anomalous. There was either narrowness or deviation of the septum or some of the other conditions known to influence unfavorably the course of nasal suppuration. A second observation is that in some instances peripheral paralyses of the ocular muscles are due to intranasal conditions. I have in a previous paper referred to three successive cases that had come under my observation. I have seen two others since, where the paralysis occurred in one of the branches of the third nerve or was limited to the abducens, where the entire course and recovery characterized the trouble as peripheral. In all these patients the paralysis was preceded by acute suppuration in the side of the nose corresponding to the affected eye.

Dr. William L. Ballenger.—The essayist mentioned enlargements of the sphenoid and ethmoid bones, and I am not sure whether he meant simply hypertrophy of the bony tissue or a dilatation of the cells. But what I want to refer to is suppurative diseases of the accessory cavities. Let us take, for instance, empyema of the sphenoidal sinuses. If you will recall the anatomy of the parts, the position in which the optic nerve passes through the foramen and on to the globe of the eye, you will see that it passes over the sphenoidal sinus, and if there is an empyema of any considerable extent of the sinus the bony tissue becomes inflamed, softens, yields and is pressed upward, and as it presses upward the optic nerve is choked or compressed at its entrance into the foramen and we may have either a sudden, partial or complete blindness as a result. If we have empyema of the ethmoidal cells, pressure inward will produce disturbance of the muscles of the eye, and strabismus of one type or another may result. There is another condition related to suppurative disease of the ethmoidal cells which resembles dacrocystitis very much. A little lump appears upon the skin, but not in the same situation as in dacrocystitis, but above the inner canthus of the eye. This is due to a pouching of the fluids or pus formation in the ethmoidal cells.

I have never seen a case of polypus of the inferior turbinated body reported. Zuckerkandl, in his great work, says he has never found polypus of the inferior turbinated body. I think it is generally accepted as a clinical fact that polypi do not occur here. I think that most of the inflammatory diseases of the conjunctiva and lachrymal apparatus, which the Doctor mentioned, would not necessarily be extensions from the nasal tract, but that the condition which caused the nasal disease also caused the eye disturbance. We do not understand very fully the nature of these inflammatory conditions, especially of the acute type. It is reasonable, however, to believe that the conditions have a common origin in something that has not been mentioned.

Dr. Haight.—In answer to Dr. Gradle's remarks about the condition of the nose having nothing to do with a persistent ulcer of the cornea, I will say that I had, in my clinic at the Chicago Eye, Ear, Nose and Throat College, a boy 12 years old, who had a phlyctenular ulcer of the cornea lasting one year. This boy had been treated in one of the post-graduate schools, in this city, nine months previous to the time he came to me, three months ago. He had much photophobia, profuse lachrymation, the upper lid was swollen so that the eye could not be opened by patient. There was watery discharge from the nose with post-nasal adenoids and enlarged tonsils. The adenoids and tonsils were removed and the nose treated in conjunction with the eye, and now the eye is entirely well with the exception of this resulting corneal opacity, which is clearing up. In connection with the case of color blindness I refer to the cases reported by Hamilton. While the case I reported of complete color blindness is the only one that came under my notice, still I have had other cases of contraction of the visual fields. What causes it I do not know. Dr. Ballenger misunderstood me. In my paper I spoke of polypoid degeneration of the inferior turbinated body, a condition which we frequently find.

TRAUMATIC CORNEAL ULCER; REPORT OF A CASE.

BY J. W. SHERER, M.D.
KANSAS CITY, MO.

Nov. 9, 1897, N. O., male, age 55, Swede laborer, applied at the clinic of Professor W. C. Tyree of the Kansas City Medical College, for dispensary treatment for an injury of the left eye.

Previous history.—No ocular disease had been experienced. Hard chancre was reported to have been contracted twenty years ago but none of the usual syphilitic sequelæ followed. General health has always been robust and an open air life led. Of late years there has been some inconvenience from advancing presbyopia, but the aid of glasses has not been sought.

Present condition.—November 6, while crushing stone with a hammer a fragment, presumably of stone, struck the left eyeball and caused intense pain. Rubbing and wiping the eye, an effort was made to continue the work. Next day the eye was still painful, became red and some discharge was observed. The symptoms increased in severity, causing sleeplessness, loss of appetite, perpetual shooting pains through the head, violent pain in the eyeball and painful photophobia.

Examination.—November 9, the fourth day of the disease: O. D. V. = 5/x. O. S. V. = 2/L. The vision secured with the right eye was practically normal for the light and card used; the exterior of this eye was also normal. Ocular tension normal. In the left eye there was severe bulbar conjunctivitis, most intense in the ciliary zone, and some injection of the blepharal conjunctiva. The lids were somewhat swollen, edematous and heavy. In the culs-de-sac some mucopus was found, but no microscopic examination was made. A shallow, central corneal ulcer was found which was foul and progressive. Its diameter was about three millimeters, its edges undermined and a narrow boundary of cloudiness marked the limit of cellular infiltration. The remainder of the cornea was clear. The iris was slightly injected, its motility sluggish. Pupil three millimeters. Ocular tension normal. Ophthalmoscopic examination of the right eye showed clear media, normal fundus and hypermetropia = + .50. In the left eye the fundus could not be readily seen but the reflex was normal and, obliquely, the media appeared clear and fundus normal.

With a + 16, the ulcer was seen to be an excavation with overhanging edges. It contained much débris, slough and pus. A diagnosis was made of infected corneal ulcer from traumatic contusion and laceration and treatment ordered as follows: Hot compresses four times daily twenty minutes at a time, the com-

presses to be kept constantly hot by plunging them in hot water; atropin sulphate 1 per cent. aqueous solution, 1 drop applied three times daily; free use of warm, sterile saturated solution of boric acid four times daily; a lump of 5 per cent. aristol ointment to be put in the eye each eve. The patient was requested to keep the eye bandaged and to report at the clinic three times a week.

November 11, patient reported improvement; "slept for first time in several days;" pain intermits and is lighter; pupil dilated to five millimeters only; swelling reduced Treatment was continued and calomel laxative added. November 14, some chemosis present; pain is severe at times. Patient has not worked since second day of the injury. The ulcer is spreading downward slightly. With a small Bowman's lens scoop and free irrigation with boric acid solution, the ulcer was curetted. The edges were much undermined. Remembering the patient's suspicion of specific taint I put him on potassium iodid 0.65 gram three times daily.

The patient attended the clinic regularly and reported that all directions were carried out, but his home was badly ventilated and warmed and his assistance was poor. After curettement some improvement was observed; epithelium proliferating over the upper part of the ulcer. November 20 there was an acute exacerbation with development of much chemosis. The ulcer was again foul and curettement was repeated.

When next seen the patient reported much improvement under the treatment. A little later the favorable progress of the case was again interrupted. The denudation of corneal epithelium had extended inferiorly. The iris was discolored and remained undilated. Intense ocular and blepharal conjunctivitis was present with sufficient swelling of the membrane to cause some eversion of the lower lid. Some pus was precipitated in the anterior chamber. The lids were rubbed with silver nitrate, 1 per cent. solution, and the ulcer wiped out with a wisp of cotton dipped in the same solution. A little later this was repeated with improvement, the hypopyon being almost completely absorbed. Then another relapse occurred, the ulcer spreading downward and a heavy hypopyon forming. The whole lower segment of the cornea was cloudy and was apparently becoming infiltrated with pus. November 20 the patient came into the hospital and paracentesis was performed by Professor Tyree. With antiseptic precautions and under cocain, section was made with a Graefe knife through a very tough cornea, in its lower segment, and a mass of pus sufficient to fill one-third of the anterior chamber was discharged on the cheek. After irrigation and applying aseptic dressings the patient was sent to the ward. The complete antiphlogistic and antiseptic treatment was now executed by skilled hands.

At this juncture elixir of quinin, iron and strychnin was ordered in place of the iodid. The patient's strength was somewhat impaired by the suffering and nervous strain. He now suffered less and felt better, but soon the entire cornea rapidly became opaque, the lower half yellow and apparently infiltrated with pus. The chemosis again became great; the conjunctivitis was general and increased in severity and the swelling of the lids became worse. Within a few days the lower half of the cornea became markedly staphylomatous; the loss of the eye seemed at hand. The treatment was carefully continued with the addition of applications of silver nitrate, 1 per cent. solution, to the blepharal conjunctiva every other day, and the exhibition of a calomel laxative, *pro re nata*.

The patient suffered but little from the time the paracentesis was done, and December 5 the general inflammatory condition of the eye and tutamina was perceptibly improved. Henceforth the improvement was continuous. The patient slept well, had a voracious appetite, little pain, and gained in weight. December 21, he was discharged from the hospital, all inflammation having subsided, with the cornea normal in contour and clear, except in the lower half, where a faint white, cloudy leucoma marked the area of the more severe keratitis. A few fine blood vessels had proliferated into this part of the cornea. At the time of writing, Jan. 7, 1898, O. S. V. = 3/50; the cornea is slightly facetted; the leucoma bids fair to clear up partly, either spontaneously or under stimulative treatment; the pupil is regular; the iris normal in motion and color; there seems to be no disturbance of the ocular metabolism, and the lids are healthy.

The points of interest are: 1, the extremely bad irritative symptoms caused by the movement of the lids over the wound and which were relieved by immobilization with a bandage; 2, the ulcer extended down in the line of gravitation of the pus in the anterior chamber and to the area of the cornea not covered by the lids; 3, the change in course of the disease with paracentesis, hospital and tonic treatment; 4, the utter failure of the antiseptic and antiphlogistic treatment at the patient's home under pernicious sanitary and hygienic environment and in unskilled hands; 5, the fortunate issue of the case from grave danger; 6, the disappearance of large quantities of pus from the anterior chamber by filtration through the mesh-work of the ligamentum pectinatum. 7, the certain loss of the eye had paracentesis not been done and had the patient not been kept in hospital.

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A REPORT OF A CASE OF ANOMALOUS THORACIC ANEURYSM.

Read before the Chicago Medical Society, Feb. 9, 1898.

BY G. W. JOHNSON, B.Sc., M.D.

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CHICAGO, ILL.

Aneurysm of the aorta is not an uncommon occurrence in the experience of every physician, and from the group of symptoms found in text-books on practice and surgery is not especially difficult of diagnosis. That there are exceptional cases, however, in which a diagnosis is somewhat difficult, there is little doubt. Such a case is the one herein reported.

After having studied this case for some months and then being unable to make a satisfactory diagnosis, I presented the case to the Chicago Medical Society for diagnosis. A number of its most able clinicians became interested, and after considerable study and repeated examinations agreed upon a diagnosis of lymphosarcoma of the mediastinum, the tumor occupying the right thorax. The clinical and personal history, together with postmortem notes and the author's deductions, are here given in full:

Personal history.—W. D., aged 53 years, Irish, unmarried, is a plumber by occupation, venereal history negative, no history of alcoholism, typhoid fever, pneumonia or pleurisy. Has

enjoyed perfect health up to two and one-half years ago, family history negative.

Clinical history.—Two and one-half years ago patient began to complain of shortness of breath on exertion and of pain in the left chest. He was unable to lie upon the left side. Dyspnea and pain in left side of chest increased. He was admitted to St. Elizabeth's Hospital, Chicago, where he remained six months. No diagnosis was made. Was discharged and later admitted to the Cook County Hospital, Chicago, where he also remained for some months. While there he was presented by one of the professors on general practice to his class as a case of greatly thickened pleura. Was discharged from Cook County Hospital and sent to the county institutions at Dunning, Ill., where he remained until his death, without a correct diagnosis having been made.

Examination on admission to the Cook County Infirmary was as follows:

Inspection.—Body somewhat emaciated and anemic. Has lost sixty-five pounds. No difference in appearance of the two sides of the chest save that on the right side there is a turgescent condition of the superficial veins. Face somewhat edematous, with slight bilateral exophthalmus and chemosis. There is absence of respiratory expansion on entire right side of chest. Superficial epigastric veins and other superficial veins of right side of abdomen are enlarged to the size of a lead pencil and tortuous. There is respiratory dyspnea. Caput medusæ is more marked when patient is in recumbent position.

Palpation.—Right axillary glands are slightly shotty. Behind inner third of right clavicle can be palpated one gland about one centimeter in diameter, other glands negative. External venous collateral circulation on right side is plainly palpable. There is complete immobilization of right side of chest. Vocal resonance is absent on entire right side of chest, except over a narrow strip posteriorly along right side of spine. There is no pulsus paradoxus, apex beat slightly down and backward. When one hand is placed flatly upon the chest wall and pressure made, a jogging sensation is imparted. With one hand on the posterior and the other on the anterior aspect of the chest and deep pressure made, the chest is found to be perfectly solid. Arteries are not sclerotic.

Percussion.—There is complete flatness over entire anterior and posterior aspects of right chest, save for a small zone along the right spine, which is dull, scapular region dull. Liver dulness extends from the sixth interspace to about ffve centimeters below the umbilicus. There is dulness over a small area of the sterno-clavicular region on the left side. Left lung is hyper-resonant. Area of cardiac dulness is practically normal.

Auscultation.—No respiratory excursion can be heard over right lung, either posteriorly or anteriorly, save a small zone along the spinal column and over scapular region, where the breath sounds are indistinct and feeble, vocal fremitus entirely absent. Over the central portion of the chest a loud systolic thrill can be heard, but it is not a bruit. There is no murmur in the heart. There is no arhythmia and the pulse is full and strong. Thoracic paracentesis is negative. Patient complains of no pain now, save a dull pain in the lower lumbar region, and coughs but very little. Has no elevation of temperature. Has dyspnea on exertion. Sputa, urinalysis and sphygmographic tracings were negative.

Such was the patient's condition until within three weeks of his death, when he was suddenly seized with a sharp lancinating pain over the right sterno-clavicular region, which was quickly followed by an emphysematous condition of the integument over the seat of pain. This condition, however, soon gave way to an edematous condition which progressively spread bilaterally until the facial folds were entirely obliterated. The exophthalmus and chemosis became more marked and the conjunctiva congested and the face and ears edematous, almost to bursting. This condition was followed by a deep purple cyanosis. From the face and neck the edema extended over the trunk, then the upper limbs became involved, the right forearm being more edematous than the left. Then followed edema of the feet and legs with universal superficial capillary distension and congestion. Dysphagia and dyspnea became so distressing that food could not be taken, nor the recumbent posture maintained. The physical findings remained unchanged save for the increase of the area of dulness over the inner and upper portion of the left lung.

POSTMORTEM EXAMINATION.

Inspection.—Body, that of a man of medium size, moderately well nourished. There is pitting on pressure over entire body. Stellate superficial veins are quite prominent over thorax and arms, both posteriorly and anteriorly. Large veins show with considerable distinctness on right arm, and over the right side of anterior surface of the abdomen. Right superficial epigastric can be traced as far as ensiform cartilage. The veins on outer side of the thigh are more prominent than is usual. Edema of the arms is more apparent than that of the legs, and more apparent in the head and neck than in the arms. Measurements over muscular portions of both arms and legs show the right limbs to be larger than the left by from one-fourth to one-half inch. Right chest and right side of face do not measure more than left. Conjunctival vessels are injected, and the sclera is yellow. Ears are thick, tawny and dark purple.

Findings on incision.—Diaphragm extends on left side to fifth intercostal space, and on right side to the seventh rib. The free border of the liver, in the middle line, comes about one-half inch below the umbilicus, its right lobe reaches to the level of the iliac spine. Superior surface of liver reaches to the level of the ensiform cartilage. The heart reaches, on the left side, to the third interspace and one inch to the left of the sternum. Apex is not markedly displaced to left, but displaced downward. The left pleural cavity contains considerable fluid. The left lung is congested and edematous, otherwise normal. On the right side is a large mass occupying the mediastinum and extending into right side of chest and reaches to the left, as far as a line drawn perpendicularly through sterno-clavicular articulations. The right pleural cavity is entirely obliterated. The layers of the pleura are much thickened, measuring about one millimeter in thickness. They are closely bound together by adhesions that are very firm. The right lung is compressed from apex of chest to diaphragm, but pressed into a narrow zone by the side of the vertebral column. It is congested and edematous, but otherwise normal.

The heart shows no marked changes in myocardium. On the endocardium several patches of endocarditis appear, which is subendothelial and shows best on cusps of mitral valves. Mitral valves otherwise normal. Aortic orifice takes two fingertips. The valves are affected near their free surface; they are somewhat stiffened and show some atheroma where they spring from the endocardium. Right ventricle and tricuspids are normal, pulmonary valves normal. Left pulmonary artery appears normal. Right pulmonary artery shows some atheroma.

The aorta is the seat of a very large aneurysm which springs from the first portion of the arch. The aorta is atheromatous, but the atheroma is accompanied by but very little calcification. There is a small deposit of fibrin upon the surface of the aneurysmal wall, which is not very thick, and in some places markedly thin. It begins to broaden out within one-half inch of aortic valves, and from it are given off the vessels of the convexity. It extends to the beginning of the descending aorta. The atheroma extends down the descending aorta. The circumference of the descending aorta just beyond the aneurysm is six and one-half centimeters. The aneurysm presses upon the right pulmonary artery and on the descending vena cava. There is no fluid in the pericardial sac. Adhesions of pericardium are moderately firm, are uniform and universal. No calcareous masses are found in the pericardium.

The liver measures twenty-seven, by twenty, by fifteen, by five, by four centimeters, surface mottled, left lobe finely nodular. Gall bladder is of the usual size, but contains a number of small calculi and a small quantity of turbid biliary fluid. The mouth of the cystic duct is partially occluded with calculi; hepatic and common ducts are negative. Cut surface is somewhat uneven, centers of lobules depressed, the periphery elevated, showing congested atrophy.

The kidneys measure twelve, by seven, by five centimeters. Capsule is slightly adherent. Kidney is very much congested, surface granular. Cut section shows the cortex to the medullary portion, to be as one to three. Striation is distinct. There is an appearance of venous congestion and probably amyloid. Spleen is negative.

Recapitulation.—Having followed the clinical history to its end we have now the postmortem findings to aid us in accounting for some of the strange clinical phenomena and the error in diagnosis.

1. The earliest symptoms, namely, shortness of breath upon exertion, pain in the left chest, inability to lie upon the left side and the establishment of collateral circulation through the superficial epigastric veins, were due to loss of function of the right lung from the pressure of the aneurysm, producing unilateral pulmonary congestion. Pressure upon the vena azygos major would cause a stasis of the intercostal veins on the right side, the vena azygos minor, the upper left azygos vein, several esophageal, mediastinal and pericardial veins. The lumbar veins finally be-

came affected and the entire difficulty was partially relieved by the collateral circulation through the superficial epigastric system.

2. Pressure upon the inferior vena cava would produce a passive hyperemia of the liver and kidneys through the portal and renal veins.

3. As the aneurysm increased in size the function of the right lung became completely destroyed and the lung was made to occupy a narrow zone along the spine, which accounts for the dulness and feeble respiratory excursion over this area.

4. The later symptoms, namely, increased bilateral exophthalmus, increased dyspnea, dysphagia, bilateral chemosis, general edema, cyanosis, and the congested and distended superficial capillaries and the invasion of the upper lobe of the left lung, can be accounted for by the still further increase in size of the aneurysm, obstructing the return circulation from above by pressure upon the superior vena cava. The innominate and jugular veins, as well as the great vessels given off from the arch, being so universally and evenly involved, account for the absence of pulse phenomena.

In conclusion, from the foregoing we learn that many of the symptoms were misleading. The absence of the pulsus paradoxus and other pulse phenomena, and bruit, the extreme flatness of the right chest on percussion, the symmetry of the chest walls, the practical absence of pain and cough, the negative paracentesis and the entire absence of any auscultatory phenomena so common in aneurysm, together with the absence of such clinical phenomena as would usually be present in an aneurysm of such vast proportions, makes an error in diagnosis somewhat pardonable. However, from the clinical history and physical examination we have many points suggestive of a solid tumor of the chest. The absence of any pulse phenomena and the negative paracentesis, the unilateral collateral circulation, the enlargement of the glands, the absence of pain and cardiac disturbance, the solidity of the right chest and the deep shadow thrown by the skiagraph, would rather favor the diagnosis that was made.

That such a case should escape from two of our best hospitals and from such a large number of eminent clinicians without a correct diagnosis, is enough alone to brand it as an unusual case. But situated as the aneurysm was, together with its enormous size, and the pleura so much thickened, a great many of the symptoms were perverted.

DISCUSSION.

Dr. ROBERT H. BABCOCK—I examined this patient twice and made a probable diagnosis of lympho-sarcoma of the mediastinum and pleura. The case presented many of the signs of solid tumor; some of the signs of aortic aneurysm were present. The points which were of particular weight in favor of solid tumor were: 1, the insidious development of the disease; 2, the absence of fever; 3, evidences of unilateral pressure; 4, the phenomena on percussion, absolute flatness anteriorly from apex to base from the left sternal border to the middle of the right axillary region, the flatness being accompanied by a sense of great persistence; 5, there was some enlargement of the right half of the thorax, but it failed to present any of the irregular enlargement which is sometimes present in a case of solid tumor. The auscultatory findings were such as pointed to a solid tumor with entire absence of breath and voice sounds over area of flatness. Percussion and auscultation posteriorly were such as to plainly point to compression of the lung toward the back and spinal column without other involvment of the lung than that of pressure. There was against solid tumor, the entire absence of pain at the time I made the examination, although it was evident that a tumor occupied the right pleural cavity. There was also no marked debility, although the patient has lost weight. Evidently the absence of pain was due to the fact that the tumor was not impinging upon the sensory nerves within the thoracic parietes. There were certain points in favor of aneurysm, and one was the jogging impulse, which was not very marked, but which could be perceived over the lower portion of the right thorax, and the transmission of the heart sounds at that point, in fact, more or less throughout the base of the right chest, and a murmur in the right infra-clavicular region. The pulses were apparently normal, although, at the first examination, in November, there was slight inequality in the two radials. The heart was pushed downward and outward, but evidently not greatly enlarged. These two things seemed to be rather against aneurysm, and the transmission of the sounds of the heart and the perception of a murmur in the infra-clavicular region were explained on the hypothesis of pressure from this solid tumor, and the transmission through the tumor of the heart's impulse. I am surprised that it did not occur to me that a tumor the size which this must have been, had it been solid, occupying so much space in the chest, should not have had an impulse imparted to it from the heart.

Dr. ARTHUR R. EDWARDS—I saw the case about a year ago, in the County Hospital, and at a still later time, when I examined him. There was the absence, at any time I examined the patient, of any murmurs, especially the absence of bruits, of any difference in the two radial pulses, or the exact quality of the two sphygmographic tracings when the patient was first examined. There was a finding at the second examination which was lacking at the first, namely, the development of a small, hard, presumably lymphatic node above the left clavicle or rather near the jugular, which was taken, in the absence of so many of the usual symptoms of aneurysm, and the presence of so many symptoms pointing toward the bronchial lymphatics as an evidence that the patient was suffering from a neoplasm rather than from simply a thickened pleura or an aneurysm. The lymphatic node was found about six weeks after the first examination. In cases falsely diagnosed previous to autopsy, and enormous aneurysms are found, it is because of clotting of the blood, or because of equal distention of the aneurysmal sac that no bruits are found. It will happen again that we will have murmurs in cases of mediastinal tumor, so that the murmur will make no difference to us in the diagnosis.

Practically all that can be said on the subject has been recapitulated by Fraenkal, that "aneurysms may produce such changes in the lung or respiratory apparatus that the aneurysm itself may be overlooked, and secondary changes may be the main findings clinically. The pleuritic effusion may cover up the aneurysm, or, after tension has disappeared, there may be a callosity of the pleura very much like a small tumor. By the pressure of the aneurysm upon a bronchus the lungs become impermeable to air, and finally there is enormous induration because of the atelectasis of the lung and disturbed circulation of the lung substance."

A case was seen, some three years ago, in the County Hospital in which almost the same symptoms were observed as in this, except the lymphatic glands pointed to mediastinal tumor. There was absolutely no murmur, and no inequality of the radial arteries and radial tracings, and yet a diagnosis of aneurysm was made and confirmed simply because of the slow progress of the case and the presence of a syphilitic history.

CUTANEOUS ADMINISTRATION OF SALICYLATES IN RHEUMATISM, GOUT, ETC.

BY GILBERT I. CULLEN, M.D.

CINCINNATI, OHIO.

Dr. Edmund L. Gross of Paris, in a recently published brochure, presents several new ideas. He says that though the various affections classed under gouty or rheumatic often differ widely as to their manifestations, they incontestably possess numerous traits in common. Even though we may admit that gout and rheumatism are distinctly separate diseases we can not deny their close original relationship, both affections spring from the same soil, the arthritic temperament. That which above all else seems to prove their lineage is the common property which they possess of being amenable to the salicylic medications, though in different degrees. The benefits derived from the use of the salicylates in rheumatism are universally acknowledged and yet much difference of opinion

exists as to their real value. Some look upon them in the light of simple palliatives while others, and perhaps the most authorized, consider them real specifics. I firmly believe with Lecorde that salicylic acid is as much a specific in rheumatism as mercury is in syphilis. If the salicylate of soda is universally administered in all cases of rheumatism, it is less generally known that gout is greatly benefited by the same drug, especially when combined with colchicin. The great disadvantage heretofore met with in the exhibition of the salicylates has been their irritating influence on the digestive tract. which often excludes the advisability of their administration. These untoward results may be greatly attenuated, if not entirely avoided, by using the natural salicylates derived from the oil of gaultheria, betula lenta and other plants. This pure salicylate of methyl, as proved by the experiments of Professor Charteris of Glasgow, offers none of the inconvenience of the synthetic salicylate of soda and may be administered by the mouth in much smaller though equally effective doses.

There is another method of administration, however, rapidly coming into vogue in all hospitals. We are taught by the interesting researches of Professor Combemalle of Lille, and also of Professor Sigalas of Bordeaux that salicylate of soda, when dissolved in some oily vehicle, is rapidly absorbed by the skin, and in five minutes may be detected in the urine. This medication is now extensively used in the hospitals of Paris. Professor Déjerine has a favorite formula which he prescribes for all his rheumatic patients; it is the following:

R	Acidi salicylici.	Gm.	10
	Alcoholis	Gm.	50
	Ol. ricini.	Gm.	100 M.

This external application should be used in the following manner: A tablespoonful is poured into the palm of the hand and rubbed into the affected part for a few minutes; the part is then covered with oiled silk or rubber and again enveloped in several thicknesses of flannel or cotton.

The effect of this medication is very marked and the pain rapidly subsides. This is due to the fact that salicylic acid is one of the best of anodynes; it exerts this action over all pains even though they be not of a gouty or rheumatic nature. Professor Panas of Paris has sometimes used salicylate of soda as a substitute for morphia. In rheumatism there is, in addition to this anesthetic influence, a true specific action, probably due to the antiseptic properties of the drug.

There are many advantages in the cutaneous administration, of which the most important, perhaps, is the relief afforded to the digestive tract, but there is also the efficacy of a method which consists in applying a drug directly to the part affected, so that the greatest quantity is absorbed where it is most needed. This does not exclude the administration per os, but it it should be given in such minute doses that no evil effects will be felt.

I have been speaking of salicylic acid and salicylate of soda and yet I have long since abandoned this form of salicylate. I never use any but the pure methyl salicylate, as advised by Dujardin-Beaumetz, Sireday and others and find the natural product far superior to the artificial drug, both internally and externally. The above liniment used by Déjerine is far more effective if oil of wintergreen is substituted for the salicylate of soda.

It is remarkable what a wide application such a liniment has; all pains, muscular or articular, are greatly benefited. As a resolutive liniment it has no equal. I recently treated a severe case of phlebitis of the saphenic vein accompanied by a considerable tumefaction running the whole length of the thigh. The classic treatment, rest and calming applications, did absolutely no good, after two weeks of rest in bed. I tried the salicylic liniment and used the French formula known as betul-ol. After a few applications the case improved, the pain disappeared and the swelling melted away very rapidly. In fifteen days after I had used the liniment for the first time the patient was almost entirely well.

In lumbago no application is as effective as the methyl-salicylate liniment, vigorously rubbed in the part, then covered with oiled silk and several thicknesses of cotton, being held in place by a flannel band. I prefer the betul-ol formula because it contains a natural methyl salicylate dissolved in oleic acid, which traverses the pores of the skin with the greatest ease.

THE EXPENDITURE OF ELECTRIC ENERGY.

Read at the Seventh Annual Meeting of the American Electro-Therapeutic Association, Harrisburg, Pa., Sept. 21-23, 1897.

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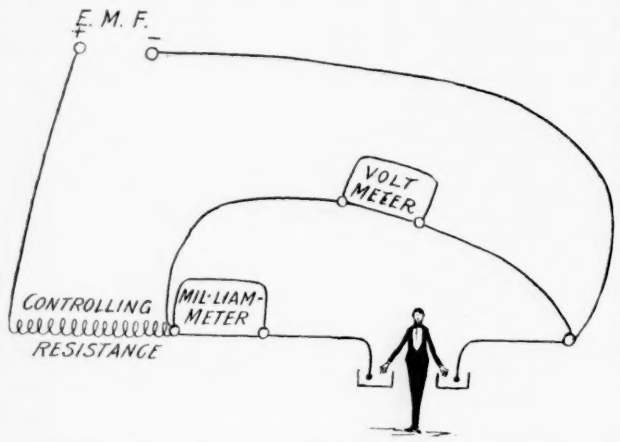
NEW YORK, N. Y.

To the physician, whose daily electro-therapeutic work is carried on with a voltmeter as well as a milliampere meter in circuit, the fundamental characteristic of electricity—pressure—becomes immediately a self-evident fact. While this may be a perfectly familiar truth in the abstract, it is impossible to have that clear perception of it which arises from the use of the means for its actual demonstration and measurement. So long as there is recognized in electro-therapeutic work only the rate of flow in milliamperes, it is not possible to have an intelligent conception of the force by means of which we make electricity available, or of the laws governing its action.

Whenever connections are made between the source of an E. M. F. or pressure (whether provided by chemic generators or dynamos) and the voltmeter, the needle swings to its place with certainty and precision, demonstrating the existence at the terminals of a pressure (potential difference) whose expenditure is capable of producing definite results, just so surely in electro-therapeutic work, as in electric engineering. Without a voltmeter there is no means of accurately determining the existence of this pressure. Who has not completed the conducting circuit to find that when the "current is turned on" the milliampere meter needle does not move at all, or else after a moment swings abruptly forward because resistance interposed in the circuit, perhaps due to an imperfect contact, has been suddenly overcome? There is thus caused a sudden expenditure of energy in the patient's circuit, resulting in severe shock and physiologic harm. With a means of determining the presence of

this initial pressure and whether it maintains itself steadily or whether, from imperfect contact, a variable E. M. F. exists, indicated by the fluctuations of the voltmeter needle, all question of trouble, in so far as the pressure at the terminals is concerned, can be eliminated before the conducting circuit is completed. If when the latter is accomplished and resistance placed in the circuit there should not promptly be established a rate of flow as indicated by the milliampere meter, the operator does not need to go back of his conducting circuit, *i. e.*, conducting cord, electrodes and patient, to determine the whereabouts and nature of the trouble.



The above diagram represents the manner of connecting the voltmeter in circuit so as to secure the necessary readings.

The connections of the voltmeter are across the electrodes, eliminating thereby the resistance of the controlling device with which our batteries and adapters are usually provided.

When connections are made for work there are certain facts to be observed from which certain others are to be calculated, in order that we may have some definite idea of the force with which we are dealing, of the expenditure of energy and of the resistance of the obstructions in the conducting circuit.

This brings us to the two grand divisions of our charts, namely observed and calculated facts.

Under the head of observed facts, we have first, the source at the terminals, or potential force in volts.

As will be seen from an examination of the charts, this varies greatly. The work was done with the Kennelly adapter, and the varying pressure obtained by shunting the excess of voltage through the lamps provided for that purpose; and as in some instances, the adapter was connected directly with the Edison incandescent or direct current circuit and in others with a motor dynamo, the result is a pressure at terminals of considerable variation, say from 15 to 120 volts.

With the direct current from the Edison incandescent circuit the potential force, pressure or E. M. F. varied at the terminals from 115 to 120 volts. With the motor dynamo, converting a Thomson-Houston alternating current at 104 volts into a direct current, the E. M. F. at the terminals varied from 40 to 60 volts. Whatever our equipment, with the existence of this potential force in volts, demonstrated beyond question, its expenditure at once becomes a matter of actual observation.

An E. M. F. is often likened to the pressure or head of a body of water, a reservoir for instance. As we have seen, the E. M. F. is the initial thing, and relates to that potential force which establishes the difference of potential. Nor is it possible to have an electric current without a difference of potential. As water flows from a higher to a lower level, so the electric current is assumed to flow from a higher to a lower potential. In order to secure and maintain a potential difference it is necessary to connect the initial pressure with a conducting path or circuit in which we wish to do work. And wherever we wish to do useful work there must be placed in the conducting circuit an obstruction or resistance. This we have in the person of the patient forming a part of our conducting circuit, as well as in the milliampere meter, conducting cords and electrodes. In overcoming this resistance or obstruction in our path a part or perhaps the whole of the initial pressure may be expended. "At every point in such a path, or more accurately, between the two points, no matter how large nor how easy the path may be, some fraction of the total pressure has been expended in exact proportion to the opposition it met, or in other words to the resistance which it encountered."[1] Were it not for resistance in a circuit, no work would be done. In the path of the pressure expended on the tissues of the body the same law applies as in electric engineering. The voltmeter needle indicates promptly and definitely the standard of pressure which can be relied upon to initiate and maintain this expenditure of energy, and thus we are able to record the second of our observed facts, viz., the available potential difference or available E. M. F. This difference of potential falls in value as the current flow increases, and if we will think of that current flow which we call milliamperes, or fractions of an ampere, as the expenditure of volts per ohm of resistance, just as the expenditure of a certain muscular force, moving a definite weight, results in a certain rate of work which we may call foot pounds, the fall in value of the potential difference as the current flow increases will be readily appreciated. In the latter instance the expenditure of muscular power leaves less for further efforts (a potential difference, or a difference of potential). In the same manner using up a variable proportion of the E. M. F. in overcoming a variable resistance, gives a variable remaining difference of potential.

Before the resistances of the patient and contacts are placed in circuit, the E. M. F. of the dynamo current (for instance) as registered by the voltmeter, will be, say fifty-two volts. These fifty-two volts do not represent the entire output of the dynamo, as there is a little loss in the voltage due to the resistance of the armature or what is known or the "internal drop," and also an additional loss in the conducting circuit as represented by the insulated wires running from the dynamo to the room in which the adapter is placed. Now, the fifty-two volts, which were shown by the voltmeter, when the dynamo was set in motion, is the initial pressure, E. M. F. or, as per our charts, the source at the terminals. As the resistance is overcome there is a current flow as the case may be, of .010, .015 or .020 of an ampere. When this rate of flow is established it is found by observation that the voltmeter registers, say forty-six volts.

The amperes, whatever their number, give the rate of expenditure of volts per ohm independent of time, or the rate of flow. The forty-six volts is the actual working pressure or E. M. F., *i. e.*, the available poten-

[1] Current Distribution. By W. J. Jenks, E. E. Transactions American Electro-Therapeutic Association, 1894.

tial difference at the electrodes (volts), the rest having been consumed in overcoming the resistance of the conducting circuit, *i. e.*, the milliammeter, conducting cords, electrodes and patient.

The six volts used in overcoming the resistance of the circuit is called the "drop." A part of this pressure has been expended on the conducting circuit other than the patient and is known as "conductor drop" and a part on the patient in doing "work." If there is added to these the potential difference, forty-six volts, or forty-six plus six, we have the total E. M. F. of the circuit external to the dynamo. The resistance of the milliampere meter as well as conducting cords and electrodes is practically negligible however. On expending a part or the whole of this initial pressure in overcoming the resistance of our circuit, and in doing useful work, a current is brought into existence, as we have seen, which our milliampere meter needle promptly and accurately registers, and which we record under the head of milliamperes as the third of our observed facts. This expresses the rate of expending volts per ohm of resistance, or in medical applications of millivolts per ohm, and is usually the only measurement recorded by the electro-therapeutist. Given then a working E. M. F. or available potential difference, and the rate of flow in volts per ohm of resistance, it becomes only a matter of calculation to determine the resistance of our conducting circuit, for the E. M. F. divided by the C. S. gives us the resistance in its unit of measurement or ohms.

This brings us to the second broad division of our charts, where we find that there are certain facts, which instead of being observed are obtained by means of calculation, and the first of these is the body and contact resistance in ohms. This is a step on our way, for the resistance of the human body in health and disease promises to be a matter of great importance to the physician.

It has been suggested by a well-known physicist "that an accurate knowledge of the resistance from point to point of an average human body might assist occasionally in the diagnosis of disease, and the comparison with the resistance of a corpse might have useful results to show."[2] But as yet, however, our conception of the expenditure of electric energy is very inadequate, for our only measurement thus far simply expresses the rate of flow in M. A., and conveys no comprehension of the rate at which we are doing work in the tissues. This can be only determined when the total expenditure of potential between the two given points in the electric circuit is found and multiplied by the rate of such expenditure in each unit of resistance between the same two points; or in other words, when the volts are multiplied by the milliamperes we secure a product in volt-amperes, or better, in the unit of electric power, watts. By this process the rate at which we are doing work or expending energy in the treatment of a given condition, whether a uterine fibroid, pelvic exudate or a wasted muscle, wherever or whatever it may be, is determined. But it is desirable that we should know not only the rate at which we are doing work but the total amount of work done. To secure this aggregate, it is necessary to add still another factor. By recording the observed time of an application (see fourth division of observed facts of our charts, "time in seconds"), it becomes at once an easy matter to obtain the total energy expended in the tissues; for the rate of work, the volt-amperes or watts multiplied by the time in seconds will give us the total amount of work done, the volt-ampere-seconds or *joules*. By referring to the third division of our second broad division we find recorded the total amount of work done (energy expended) in the units of work or joules. This may be in heat developed, as in cautery applications; it may be in mechanical work done, as with alternating currents, or it may be in chemic action as in the applications of the direct current.

The rate of work, as well as total amount of work done, can be calculated in fractions of a horse power or foot pounds, if it will convey any clearer conception to our minds of the rate of expending energy or the total amount of energy expended within the tissues. But the sooner we come to think in electric units, however, with a definite idea of their meaning, the sooner will we do our work understandingly and advance the cause of scientific electro-therapeutics.

Perhaps it may not be undesirable before further considering the expenditure of electric energy in the human body, to briefly recapitulate here the definitions of the less frequently used units of measurements.

The joule is the international unit of work, and is nearly equal to .7381 foot pounds at the latitude of Washington.

The watt is the international unit of activity or power, or of the rate of working per second of time, and is an activity of one joule per second. That is, the force that will raise one pound at the latitude of Washington through the distance of .7381 foot in a second, expends work at the rate of one watt, or one joule per second.

The horse power represents an activity of 550 foot pounds per second at Greenwich or 746 watts, so that one horse power equals 0.746 kilo-watts, that is one kilo-watt equals 1.34 horse power.

It is important that there should be clearly understood the difference between work or energy expended (joules) and activity or power (watts).

Work, *i. e.*, joules, is a measure of the expenditure of energy, and is equal to the product of a force and the distance of time through which that force acts.

Activity is the rate of expending energy (watts) or doing work, and is found, or at least averaged, by dividing the work done in a circuit, or a portion of a circuit, by the time occupied in doing it.

When a weight of one pound is raised through one foot, whether it be raised in a minute, or in a second, the same amount of work is done, but in the latter case, the rate at which the work is done or energy is expended is sixty times greater than in the former. Suppose a mechanical energy that is capable of raising 33,000 pounds 1 foot in 1 minute. This equals one horse power. It will be readily appreciated that here a tremendous force is exerted, and one which is capable of producing a serious injury to anything that may come in its path; but suppose that 33,000 pounds to be raised 1 foot in a period of time from 5 to 10 minutes, one can readily appreciate that this immense force could be applied without tending to cause mechanical injury. Thus we see that it makes a very great difference as to the rate at which the work is done. In the former instance just as much work was done or energy expended as in the latter, but at a very different rate. Or again, take the lightning flash, or an explosion of dynamite. If the same number of heat units which are in these cases exploded, perhaps

[2] A. E. Kennelly.

in one millionth of a second, could be so retarded in expenditure as to cover one second or one minute, no destructive action would be apparent.

When lightning strikes a forest tree, the inconceivable rapidity of expending a given number of heat units allows no time for gentle radiation, but instantly turns to steam the moisture in the tree trunk and beneath the bark, which then occupies 1600 times the space which it did in the form of water, and the steam pressure becomes so terrific that nothing can withstand its outwardly expended energy. With these examples it is easy to appreciate why there should be known not only the total energy expended, but the rate at which that energy is expended.

Suppose a pressure or E. M. F. of 120 volts, and a current flow of 50 milliamperes to be expended within the tissues, uniformly, during the period of 1 second of time, or during any other period; the rate of expending energy would be 120x.050 volt-amperes or 6 watts, and the total amount of energy expended in 1 second would be 120x.050x1 volt-ampere-seconds or 6 joules; such an expenditure of energy would have a tendency to disruptive action upon the tissues, and would be capable of causing great injury to them, while a lesser E. M. F, say 30 volts, a lesser rate of flow, say 25 milliamperes, extending over a period of 8 seconds, or again a pressure of 30 volts, but a still smaller rate of flow, say 12½ milliamperes, extending over a period of 16 seconds, would cause as great an expenditure of total energy, but one that would result in no disruptive action upon the tissues. On the contrary, the latter would prove an expenditure of energy which would not be felt in an appreciable sense, would cause no injury, and would tend only to the furtherance of physiologic action of the part to which it was applied.

To summarize: Force is a cause of change. Energy is the power of doing work. Work is energy expended (joules or volt-ampere-seconds). E. M. F. is measurable by the total potential difference at the electrodes (volts). Current is the rate of expenditure of volts per ohm (amperes) independent of time. Power is the rate of expenditure of energy not in time but in the total ohms, independent of time (watts).

It is essential then to know not only the rate of flow, as indicated by the number of milliamperes, but also the working E. M. F. (that is the available potential difference at the electrodes) and the time of a given treatment, so as to be able to calculate the rate of the expenditure of energy and the total energy expended, not for the satisfaction of making such a calculation simply, but because, to promote processes by means of which it is possible to restore healthful function, the same total energy should be expanded slowly, so as to give the tissues themselves, to their molecules and atoms, an opportunity to adjust themselves to the influence at work.

"We must bear in mind here that it is not the electricity itself which is directly effective, but that by its means there is conveyed to the proper point a potent energy so flexible, so obedient to known laws as to result in a transformation to heat and chemic action, or some other manifestation, *i.e.*, the energy peculiar to vital cells. And that energy should be expended at such a rate as to encourage this action, not militate against it, as would be the case in a sudden expenditure of the same amount."[3] And that rate of expending energy or volt-amperes must be obtained by the expenditure of only such a pressure as is necessary to procure the requisite current flow through the obstructions placed in the path, or the resistance of the conducting circuit. We are thoroughly cognizant of the inadvisability of using the same muscular force in handling a fragile microscope cover glass as in the iron plate covering the manhole of a sewer. We know at once that the result would be disastrous to the cover glass. On the other hand, we know equally well that the muscular force necessary to lift the cover glass will have no effect whatever upon the iron plate.

Physical laws are the same, no matter what the agency used. There is therefore every reason why our apparatus, whether used with chemic generators or dynamos, should be so constructed that the pressure in volts can be carefully graduated from the fraction of a volt up to the full E. M. F. of which the generator is capable.

The blow that will cause the death of an eagle will not only take the life of a tiny humming bird, but shatter it to atoms as well, while the power necessary to cause the death of the latter may have no effect on the former. Just so must our volt-amperes be regulated to the work done. The acute neuritis, as well as the acute and subacute pelvic inflammations, for instance, require the minimum rate of expenditure in volt-amperes and it is not only the milliamperes we must look to, but the volts as well. We may use 20x5 volt-amperes or 5x20 voltamperes in the treatment of a given condition. The rate of expenditure, or watts, is the same in both instances, but the action upon the pathologic condition must be different. In the one instance the pressure in volts is in excess of that needed with which to do the work and expended along our conducting path and can only result in physiologic harm to the tissues involved.

In the conditions which we have just indicated nothing is to be gained by carrying our applications to the point of pain. We must remember that we are expending an energy within the tissues which produces a silent chemic change, that our purpose is to expend that energy in such a way as to exercise a directive influence upon the molecules and atoms, not to cause any disruptive action of which pain might be a manifestation, and that to gain our end it is not only wiser but necessary to expend fewer volts per ohm of resistance (or fewer milliamperes) for a longer time. By increasing our time limit the volt-ampere-seconds or the joules are increased but at no time is the rate of expenditure in watts, or fraction of a horse-power, sufficiently great as to cause pain or destructive action. In the treatment of fibroid tumors or exudates, on the other hand, greater pressure is required, in order to overcome the resistance of the denser structures in the conducting path, so as to secure necessary current flow.

In percutaneous applications the proportion of the volts and amperes must vary considerably from their proportion in mucous membrane contacts. In the former considerable pressure is expended to overcome the resistance with a minimum of current flow; in the latter, because of diminished resistance, less pressure is needed to secure the necessary rate of flow. In both instances, however, there may be the same rate of work or watts.

In our electro-therapeutic applications, however, there must be considered not only the expenditure of watts, but the path of its expenditure. This brings

[3] "Current Distribution," by W. J. Jenks, E. E. Transactions American Electro-Therapeutic Association, 1894.

Mrs. J. T., age 33; occupation, domestic duties; condition, married. Diagnosis: Metritis and endometritis with cystic degeneration of cervix. Treatment: Vaginal hydro-electric douche, three quarts 3 per cent. saline solution, temperature 100 F. negative; indifferent electrode 36 square inches in area to abdomen; intra-uterine silver electrolysis; indifferent electrode 36 square inches in area to abdomen negative; cupric puncture to cystic cervix, indifferent electrode 36 square inches in area to abdomen negative.

Date.	Observed. Treatment.	Volts. Source term.	Volts. Avail. P. D.	M. A.	Time. Seconds.	Calculated. Ohms, body and contact	Rate of work. Watts.	Total work. Joules.	Remarks
1896, Dec. 3.	Vag. hydro-electric douche.	45	43	20	600	2,150	.86	516	
1896, Dec. 4.	I. U. silver electrolysis.	45	43	10	300	4,300	.43	129	Here the current traversed the dense structures of the uterus, hence increased resistance over vagino hydro-electric douche; diminished rate of expenditure and less work done; but watts expended within a limited area, *i. e.*, current density instead of current distribution as in the douche.
1896, Dec. 5.	Vag. hydro-electric douche.	45	41	20	600	2,050	.82	492	
1896, Dec. 7.	Vag. hydro-electric douche.	44.5	41	20	600	2,050	.82	492	
1896, Dec. 8.	Vag. hydro-electric douche.	44	41.5	20	600	2,075	.83	498	
1896, Dec. 9	Cupric puncture to cervix.	33	32.75	5	100	6,550	.16375	16+	Here again current density or localized expenditure of Watts.
1896, Dec. 10.	Vag. hydro-electric douche.	33.5	30	15	600	2,000	.45	270	
1896, Dec. 11.	I. U. silver electrolysis.	45.5	41	20	300	2 000	.82	246	
1897, Jan. 29.	I. U. silver electrolysis.	44.5	41.5	20	300	2,075	.83	249	
1897, Feb. 1.	Vag. hydro-electric douche.	44.5	41	20	600	2,050	.82	492	Same rate of flow of milli-volts per ohm of resistance, same rate of work in watts, but twice the time, so twice work in Joules.
1897, Jan. 28	Cupric puncture to cervix.	44.5	41	10	30	4,100	.41	12+	Here tissue dense.
1897.....	" "	44.5	41.5	10	30	4,150	.415	12+	Here cystic, small expenditure of milli-volts.
1897.....	" "	44.5	42.5	10	30	4,250	.425	12+	Here cystic.
1897.....	" "	44.5	42	10	30	4,200	.42	12+	Here cystic.
1897.....	" "	44.5	43	7	30	6,142+	.301	9+	Oxidation not removed from needle, after previous punctures.
1897.....	" "	44.5	43	8	30	5,375	.344	10+	Here tissue dense.
1897.....	" "	44.5	42	10	30	4,200	.42	12+	Puncture made where the mucous membrane of cervix merges into that of cervical canal.
1897.....	" "	44.5	42	10	30	4,200	.42	12+	Same as preceding.
1897.....	" "	44.5	42	10	30	4,200	.42	12+	Here cystic.
1897.....	" "	44.5	42.5	9	30	4,722	.3825	11+	Here cystic.

Chas. J.; age, 34; occupation, cook; condition, single. Diagnosis: Exudates about articulations of elbow, wrist and hand and sheaths of tendons, with impaired mobility from septic inflammation. Treatment: Continuous current, active electrode, hand and arm in warm saline solution negative; indifferent electrode, 9 square inches in area to nape of neck.

Date.	Observed. Volts. Source, Term.	Volts. Avail. P. D.	M. A.	Time, Seconds.	Calculated. Ohms, body and contact.	Rate of work, Watts.	Total work, Joules.	Remarks.
1895, Oct. 29.	Observer failed to record.	48	20	600	2,400	.96	576	Before treatment the thumb was brought to within 1⅛ in. of forefinger, 1¾ in. of the middle finger, 2½ in. of the ring finger.
1895, Dec. 3.	Observer failed to record.	51	30	600	1,700	1.53	918	Thumb brought to within ⅝ in. of forefinger, 1¼ of middle finger, 2 in. of ring finger.
1895, Dec. 7.	Observer failed to record.	48	26	600	1,846	1.248	748+	Can use forefinger better.
1895, Dec. 10.	Observer failed to record.	49	20	600	2,450	.98	588	Diminished rate of flow. Increased resistance. Diminished rate of expenditure and total work done.
1895, Dec. 14.	20	18	30	600	600	.54	324	
1895, Dec. 19.	Observer failed to record.	49	30	600	1,633	1.47	882	Wrist joint more mobile.
1895, Dec. 21.	Observer failed to record.	19	20	600	950	.38	228	
1895, Dec. 24.	Observer failed to record.	19	20	600	950	.38	228	
1895, Dec. 26.	Observer failed to record.	52	20	600	2,600	1.04	624	
1895, Dec. 31.	Observer failed to record.	15	20	600	750	.3	180	
1896, Jan. 4.	Observer failed to record.	50	20	600	2,500	1.	600	
1896, Jan. 11.	50	46	20	600	2,300	.92	552	
1896, Jan. 16.	Observer failed to record.	16	20	600	800	.32	192	Improving.
1896, Jan. 18.	Observer failed to record.	52	20	600	2,600	1.04	624	Increased mobility of first phalangeal joint.
1896, Jan. 23.	Observer failed to record.	49	20	600	2,450	.98	588	
1896, Jan. 28.	Observer failed to record.	49	20	600	2,450	.98	588	Second finger can touch thumb.
1896, Feb. 2.	Observer failed to record.	45	20	900	2,250	.9	810	Flexion at wrist normal; supination and pronation normal.
1896, Feb. 11.	Observer failed to record.	47	20	900	2,350	.94	846	
1896, Feb. 15.	54	50	20	600	2,500	1.	600	Is making very satisfactory gain.
1896, Feb. 18.	42	42	20	600	2,100	.84	504	Increased mobility of articulations.
1896, Feb. 20.	54	49	20	600	2,450	.98	588	Can touch thumb to first and second fingers and to 1¼ in. of third.
1896, Mar. 4.	56	52	20	600	2,600	1.04	624	Passive motion of thumb complete; index finger to ¼ in. of palm.
1896, Mar. 17.	54	50	20	600	2,500	1.	600	Index to ¼ in. of ring finger.
1896, April 4.	45	42	20	600	2,100	.84	504	*

* This patient, who could not lift a newspaper when he came under care and who had been treated by means of massage and passive movements, is now able to return to his work as a cook, with all the lifting that it involves. At first there was no play of tendons at wrist, and hand and arm felt like a board. Now there is normal play of tendons and muscular movement and tissue of arm and hand are soft.

K. J., age 21; condition, single. Diagnosis: Facial acne. Treatment: Percutaneous application, continuous current, sponge electrode to the face, 1½ square inches in area negative; indifferent electrode, 9 square inches in area, to nape of neck.

OBSERVED.					CALCULATED.			REMARKS.
Date.	Volts. Source, term.	Volts. Avail. P. D.	M. A.	Time, seconds.	Ohms, body and contact.	Rate of work, Watts.	Total work, Joules.	
1896, Mar. 11.	21	20	4	360	5,000	.08	28+	Small surface contact, hence greater resisitance. The greater the area of the gross section of the conductor, the less the resistance.
1896, Mar. 13.	31	29½	5	400	5,900	.1475	59	More volts expended per ohm of R., increase in rate of flow, therefore more volt-amperes, or greater rate of expending energy, and more energy expended in Joules.
1896, Mar. 17.	31	30	4	360	7,500	.12	43+	

The following observations were made in several different cases and the diagnosis is mentioned in connection with each application. The treatments are briefly indicated below: Utero-abdominal, metal electrode within the uterus, abdominal contact, 40 square inches in area; vagino-abdominal, metal electrode within the vagina, abdominal contact 40 square inches in area; vaginal bi-polar; percutaneous, neck to hand contact.

OBSERVED.						CALCULATED.			REMARKS.
Date.	Treatment.	Volts. Source, term.	Volts. Avail. P. D.	M. A.	Time, seconds.	Ohms, body and contact.	Rate of work, Watts.	Total work, Joules.	
1897, Sept. 15.	Utero-abdom. Endometritis.	Coil on Kennelly adaptor con. with Edison incan. cir.	5	8	360	625	.04	14+	The equivalent of the secondary fast interruptions, 1800 turns from the coil of the Kennelly adaptor.
1897, Sept. 15.	Pelvic conges. Vag.-abdom.		5	9.5	360	526+	.0475	17+	The equivalent of the same, 1500 yards.
1897, Sept. 18.	Pelvic conges. vag. bi-polar.		4	8	600	500	.032	19+	Here conditions more nearly approach a short circuit where but little pressure is required. The equivalent of the above, 1800 turns.
1897, Sept. 18.	Percutaneous from neck to hand contact.		10	0.5	90	20,000	.005	45	The same as above, 1800 turns, used to deaden skin sensibility over abscess. Immense R. because of skin contact limiting the output in M.A. Sensory disturbance not due to current flow, but to R. of skin contact, interruptions and irregular wave or graphic curve.
1896, Oct. 18.	Vag.-abdominal induced.		5	9	600	555+	.045	27	Equivalent of 1500 yards, secondary.
1896, Oct. 18.	Pelvic congest.		6	10	600	600	.060	36	Equivalent of 1200 yards, secondary.
1896, Oct. 18.	Pelvic congest.		7	11.5	600	608+	.0805	48+	Equivalent of 900 yards, secondary.
1896, Oct. 18.	Pelvic congest.		7	11	600	636+	.077	46+	Equivalent of 600 yards, secondary.
	OBSERVATIONS WITH SINUSOIDAL CURRENT.								
1897, Sept. 15.	Percutan., hand to hand contact. Experimental obser.		12	10	600	1,200	.12	72	Kennelly inductor alternator used in all these instances.
1897, Sept. 18.	vagino-abdominal.		13.2	23.2	600	568+	.3062	183+	Frequency 100,800 alternations per minute; four ½ ampere lamps to alternator.
1897, Nov. 8.	Utero-abdominal; fibroid tumor.		6	12.5	300	480	.075	22+	Frequency 100,800 alternations per minute; two ½-ampere lamps to alternator.
1897, Nov. 8.	Vagino-abdominal.		10	18.5	600	540+	.185	111	Frequency 114,240 alternations per minute; three 1½-ampere lamps to alternator.
1897, Nov. 8.	Vagino-abdominal; fibroid tumor.		12.5	24	300	320+	.3	90	Frequency 100,800 alternations per minute; four ½-ampere lamps to alternator.
1897, Dec. 13.	Feet in bath, surface contact to abdom. Case of gout.		7.5	7	600	1,071+	.0525	26+	Frequency 112,120 alternations per minute; three 1½-ampere lamps to alternator.

us to a consideration of the density or degree of concentration of the current. The path of the greatest current density or expenditure of watts may or may not be in the most direct path between the electrodes. This will depend upon the pathology under consideration and the habit of the patient, as we shall see later on. However, as a rule we should expect that the densest current, in an intrauterine application in endometritis, for instance, would be the most direct. Increasing the distance traversed by the current tends to an increase of the resistance and as the expenditure is always in the lines of least resistance the tendency would naturally be in the lines directly between the two electrodes. But in such an application, as usually carried out, the greatest expenditure is on the anterior surface of the uterine canal, because of the direct path between that and the abdominal wall occupied by the surface contact or indifferent electrode. The expenditure on the posterior wall would thus be reduced to a minimum, because this would not be the conducting path owing to the greater distance to be traversed and hence greater resistance. To our failure to expend energy upon the uterine mucosa in its entirety must be attributed our failures in relieving existing pathology. In consequence of this law it will be better in such conditions to use both abdominal and lumbo-sacral surface contacts with a bifurcated cord, in order to insure as equal an expenditure of energy throughout the uterine mucous membrane as the character of the structures and their resistance will permit. It is not the agent which we use that is at fault, but it is our failure to adapt the means to the end. Electrodes are not constructed so as to produce complete contact, and our technique is at fault. It is not sufficient that energy be expended in the tissues, it must be expended in such a manner as to influence directly the diseased structures. And where this is a localized condition, as in a typical endometritis, at that point must be exhibited the greatest expenditure of watts.

For instance, in a vaginal hydro-electric douche with abdominal surface contact, a working E. M. F. of forty volts and a current flow of twenty milliamperes, the energy expended in one second of time would be eight joules, but that energy would be expended throughout all the tissues of the pelvis. On the contrary, in the intra-uterine treatment of an intramural

fibroid, anterior, with abdominal surface contact, given the same available potential difference, the same current flow, there would still be in one second of time an expenditure of eight joules, but that energy would be expended or work done at the site of the internal electrode, *i.e.*, on the anterior uterine mucous membrane, and secondarily upon that portion of the intramural growth directly adjacent, instead of being distributed, as in the former instance, over considerable areas of tissue.

These examples are multiplied in the charts which accompany this paper, and in some instances, attention is called to them under the head of "Remarks."

In a hydro-electric application, whether vaginal, intestinal, vesical or nasal, the idea is to distribute the current as thoroughly as possible throughout the diseased tissues. We do not desire a localized application or expenditure of watts in a limited path, as for instance in an endometritis, a urethral stricture or hypertrophied turbinated body, but wish to distribute the expenditure through large areas so as to bring the entire pathologic condition under its influence. In a pelvis filled with exudates, a foot or a hand the subject of a sprain, a rheumatism of a leg or arm, an articulation immobilized by exudative material or sheaths of tendons bound down by the products of inflammatory action, our aim must be current distribution, and to that end we utilize either electrodes of large square inch area, or warm saline solutions with which the part is filled or in which it is immersed. The saline solution becomes the electrode carrying the current to all parts of the diseased structures.

We are not to think of the current as flowing in direct lines through the region between the two electrodes, but as seeking its way from its positive to its negative pole by paths which are often devious, those of best conduction. For instance, in a vaginal or vesical hydro-electric, or intra-uterine treatment of a patient whose abdominal wall is thickly covered with fat, there is great divergence of the direction of the lines of current, because the fat itself is practically a non-conductor and only has conductivity by reason of the few blood vessels running through it. The energy is expended therefore, along the paths of least resistance, through the interstices, as it were, the blood because of its fluidity and salinity affording good conduction.

If the patient be of a lean muscular habit, there will be less divergence of the lines of the current, and greater current density, *i. e.*, greater expenditure of watts even with the same square inch area of electrode; because the conducting medium being good, and affording practically the same resistance in all parts the lines of the current will be more direct; there will be no seeking of by paths, but a straightforward push throughout the interpolar region.

The greatest expenditure of energy is always at the point of greatest resistance, but if we wish to expend the energy at such a point, then we must so adapt our electrodes to the condition to be treated that there may be offered little or no opportunity for any divergence of current flow, but a distinct localization within the prescribed limit. For instance, in epilation there must be had a minute, almost microscopic localization of the current. A tiny steel needle is inserted into the hair follicle and attached to the negative pole. Action upon the skin is to be avoided. The indifferent electrode is placed conveniently near at hand so that as little resistance as possible shall be interposed. In this application our desire is to avoid just as much as possible current distribution. Nothing is to be gained by it, but much to be lost. If the indifferent electrode be large (from three to six square inch area is abundantly large) there is a greater diffusion at that point and greater current density at the needle than is expedient. There is a convergence of the lines of current flow from the indifferent electrode to the tiny needle electrode placed within the hair follicle. At the latter the cathions are concentrated; at the former the anions are distributed over its surface. At the site of the internal electrode there is current density, at the indifferent electrode current distribution. The same conditions exist in any intra-uterine or intra-nasal application. In the destruction of a growth, as a fibroid tumor or a mole, current density is necessary at the site of the intra-uterine electrode or of the needle in the mole.

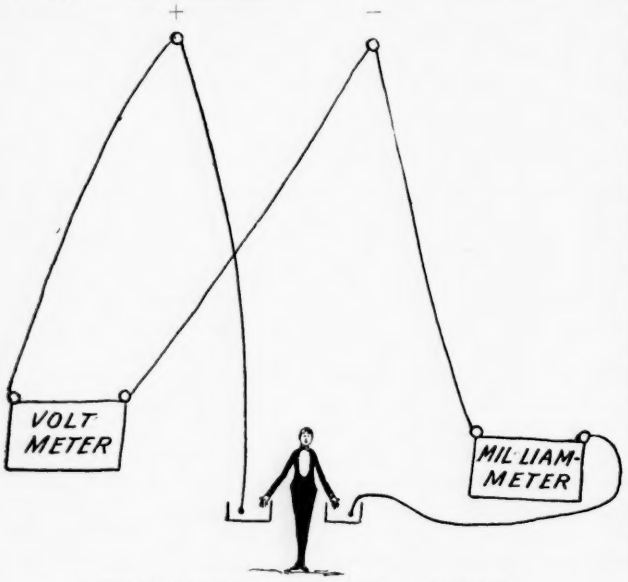
Whether current distribution or current density are required at the active electrode, depends upon the pathology underlying the condition you wish to treat. There are factors which must enter into every application and they are dependent upon and influenced by the resistance in the path of the current.

I have not thought it best at this time to draw any deductions from the resistances obtained in the various pathologic conditions or in the different applications of the current embodied in the accompanying charts. Under the head of "Remarks" on the charts will be found statements as to the difference in resistance in the hydro-electric applications to the mucous cavities and intra-uterine applications. In the former instance the cavity is filled with warm salt water, a good electrolyte with comparatively low resistance, and more than that the current as we have seen finds the way of least resistance. In the intra-uterine applications, however, the path is through the denser structure of the uterus itself, which must of necessity have greater resistance, and in addition these applications are nearly all of metallic electrolysis, where the formation of the oxid, and its transference increases the resistance of the conducting circuit. In the cupric and zinc punctures to the cervix in a series of cases, a difference in resistance will be noted between those made into the cystic portions of the cervix and those made in the denser portions, especially in the cases of cervical fibroids. A difference will also be noted in the resistance of the conducting path in vaginal hydro-electric and intestinal hydro-electric douches, while considerable increase may be noted in the percutaneous applications over those with one mucous membrane contact. The comparisons must be made in those instances where the available potential difference or working E. M. F. was practically the same. A high pressure was used in some instances where its use is considered undesirable, and where with the present means at command of limiting the source at the terminals, it would not again be used in similar conditions.

I call your attention to the chart, which gives in recognized units of measurements the same facts for alternating currents of both the symmetrical and dyssymmetrical types, or the sinusoidal, and faradic as for the constant currents. They are few in number, as the volt and milliampere meters were put in my hands but a week since, but have been very instructive, and through the agency of such instruments of precision, the therapeutic applications of these cur-

rents will soon be reduced to the same exactitude as those of the constant current.

In these observations the readings are given in virtual or effective milliamperes and also the working E. M. F. in volts employed in sending this current through the body. From the pressure in volts and the current flow in milliamperes thus obtained and time observed, calculations have been made giving the resistance, the rate of expended energy in watts and the energy expended in joules. Under the head of "Remarks" will be found a statement giving the equivalent as to coil, character of interruptions and number of turns of wire with the faradic and the frequency of the sinsoidal.



TERMINAL BINDING POSTS OF COIL OR ALTERNATOR.

The above diagram represents the manner of connecting these instruments both with the coil and the alternator.

These instruments have not been in my hands a sufficient length of time to make extended observations. I feel that this addition to our equipment marks a new era and one that can not fail to be fruitful in scientific results. Not until work was done in the manner indicated by the charts did there come the clear and definite conception of its nature now possessed. Instruments of precision have done much toward the establishment of scientific methods, and by carrying on the work in the lines indicated very much more will be accomplished. I would therefore most earnestly recommend the use of volt and milliampere meters and the watch or clock with both the directing and alternating currents, in daily work. Data will thus be accumulated, which can not fail to be of value to the profession and the cause of electrotherapeutics will be advanced along scientific lines.

79 Madison Avenue.

SOCIETY PROCEEDINGS.

Association of American Physicians.

Thirteenth Annual Meeting, held in Washington, D. C., May 3, 4 and 5, 1898.

FIRST DAY.

Dr. F. C. SHATTUCK of Boston, delivered the president's address. He said it was 450 years since this country was discovered, and 250 years since what is properly called a hospital was founded. In the large cities, in the early days, there were very few poor persons, and the neighbors all helped each other. Later, when Irish and other nationalities began to come to this country, and the older cities grew and new ones were created, there gradually appeared what might be called a poorer class, and these hospitals were opened for the care of the sick poor. At first, hospitals were started by private subscription, but as cities grew larger taxpayers were called on to support these institutions for the care of the sick poor. The medical profession has done much without pecuniary reward, but the physician gains experience and indirectly is assisted by attending these hospitals. The returns which physicians gain from this very work are ample. Virtue is not its only reward. Hospitals for the poor may be all very well, but there are also hospitals for the rich, although these two terms, poor and rich, are relative. Persons who could pay for an occasional visit were unable to stand prolonged medical attention, and the poorest necessarily need the best attention, because their surroundings as a rule are not favorable. Medical dispensaries and hospitals are free to all who need them and should be denied to those who do not need them. Questions should be asked; every claim should be scrutinized. The matter is in our hands. If the profession would refuse to help selfish institutions there would be fewer undeserving sick poor. Still, the hospital is an education for the physician. It advances his knowledge. The clinical teacher must study his cases carefully. The didactic lecture is gradually falling into decline. The teaching hospital is not free from blame. Complaints against such institutions have arisen of late in England, and also in this country, and there are some good grounds for these complaints. In his own experience in the Massachusetts General Hospital he has had to turn away cases who were not deserving. Some cases come to get information as to whether their physician was right, and people come from the country and think they have the right to free advice at the hospital, not knowing that the city hospitals are only for the taxpayers in the city. He referred to a case of his own knowledge where a physician had sent a patient to the dispensary, asking for free consultation. In the Massachusetts General Hospital dispensary many cases have to be excluded as unworthy. There a clerk is employed at a salary of $500 a year to weed out undeserving cases. Another ground for complaint by physicians is the attaching of pay wards to hospitals which are supposed to be free. A hospital which can not be supported without this should close its doors. He referred to one hospital which had an income of $55,000 a year from its private rooms. Many cases have to be treated in hotels and boarding-houses, who are able to pay for both attention and board. Such cases should not come to a charity hospital but should be cared for in a special hospital which is accessible to them. The small hospital makes good return on its investment. Those who are with hospitals are in a better position to treat cases than those without them. The using of pay rooms and pay wards attached to a charity hospital, to which only some physicians can attend, is in the nature of a medical trust and commercialism tends to degrade the medical profession. He mentioned one hospital that had a few private rooms and where patients pay a small amount for beds in the public ward. Such institutions can be established for clinical teaching.

Dr. S. J. MELTZER of New York, then read a paper entitled

CONGENITAL STENOSIS OF THE PYLORUS IN INFANTS.

After a brief review of the literature he said that he had had but four cases of this trouble. It seems to be becoming more common, or else the cases are more easily recognized. After the first case recorded was recognized there was a long interval, and then many cases seem to have been observed within a short period. In five cases the diagnosis was made and operation done and the lives of these were saved. Several physicians have made a diagnosis by having seen others at the postmortem. He then referred to a case in which he had made the diagnosis, and showed a very beautiful specimen in a child which had during life vomited occasionally and had great trouble with its nursing and feeding. Free hydrochloric acid was present in the matter vomited. It took its food greedily. By the use of diluted carbolic acid and bicarbonate of soda the food was held for some time, but gradually the child again began to vomit and then succumbed. He found a stenosis of the pylorus and atony and dilatation of the stomach. The child was forty-four days old when it was operated on by Dr. Willy Meyer. He did a gastro-enterostomy and used the Murphy button. The child lived a very short time after this. He then explained the gradual change which took place in the stomach in this trouble, and discussed briefly the diagnosis and treatment in these cases.

Dr. I. ADLER of New York, also showed some specimens of this same malformation and explained his method of treatment. He did not use the Murphy button. In his cases he found hypertrophy of the circular fibers, but the longitudinal fibers were very little altered.

Dr. A. JACOBI of New York, referred to a case which he had seen very recently and mentioned other cases, and said that this contraction of both ends of the stomach was probably the cause of this hypertrophy.

Dr. MELTZER, in conclusion, said that he had mentioned this hypertrophy of the muscles in relating his case.

Dr. D. D. STEWART of Philadelphia, then read a paper entitled

GASTRIC CARCINOMA ASSOCIATED WITH HYPERCHLORHYDRIA,

related a number of cases of this trouble and spoke especially of the position of the cancer. He said that a positive diagnosis was very difficult, especially when the cancer included an ulcer in which a certain amount of gastric fluid persists, even after the symptoms of this disease have been marked for a long time. He related at great length a case of unusual interest in which the operation was made before the patient came under Dr. Stewart's care, which showed that there was apparently a diffuse carcinoma, the stomach being too much involved for a gastro-enterostomy. One of the omental glands was found to be cancerous. In spite of all this the patient recovered from the operation and apparently became well. The symptoms returned later on and Dr. Keen was consulted. The case would have been considered one of chronic ulcer had not that gland been examined. The patient died after the second operation. The autopsy showed that there was a very large cancerous ulcer with a thickened cancerous pylorus. He had sent specimens to different pathologists for examination and had received a variety of opinions, some saying it was tuberculous and some asserting it was cancerous, which was right.

Dr. W. E. FISCHEL of St. Louis, reported an unusual case of disease of the stomach in which there was voluntary vomiting, no pain, and the patient gained in weight. The examination of the stomach was negative. Later on a tumor was felt. He was put on a strict diet for some time; after that he could eat anything. A gastro-neurosis was suspected. He used carbolic acid and morphia. After this the patient took solid food three times a day, and later on he had pain; the tumor increased in size; he was not able to take any solid food and the pain grew excessive. An operation was advised, the abdomen opened and a large tumor found in the pylorus, but nothing could be done and the patient died.

Dr. WM. H. WELCH of Baltimore, in discussing the diagnosis of Dr. Stewart's case, said that he had examined two nodules, one from the lymphatic glands and the other from the omentum, and the diagnosis seemed clear. It surprised him that it was diagnosed tuberculous by another physician in Philadelphia. He supposed that the follicles must have been mistaken for a tubercle. Notwithstanding this discrepancy the fatal end came. There was no difficulty in making the diagnosis and the clinical results must make physicians skeptic as to the value of microscopic examinations. He suggested sending specimens to Councilman, Prudden and others and was glad that they agreed with him. The apparent recovery is interesting. Multiple cancer is explained by being due more to implantation rather than to metastasis. It is due perhaps to contact. The specimen seen at the autopsy was in such a stage of decomposition that it was difficult to make out, but it was clearly an adenoma. There was a diffuse thickening of the anterior wall of the stomach.

Dr. J. C. HEMMETER of Baltimore spoke of the one in which the gastric secretion was affected by the cancerous growth. He said that Dr. Mall of the Johns Hopkins University had been carefully studying certain cells of the stomach glands, and finds that unless these are affected the gastric juice is still secreted. These are so-called border cells, and we can sometimes have free hydrochloric acid and a carcinomatous ulcer in the same stomach. Heidenhain and Lange have done much work in this direction, and they say that ulcers in the pyloric region of the stomach do not always help in the secretion of hydrochloric acid.

Dr. JAMES TYSON of Philadelphia referred to a case which he had recently in a hospital, a man about 60 years old, who complained of great pain and tenderness in the stomach. The matter vomited was acrid and a tumor was apparent in the abdomen. He was put upon milk diet. When he first came in he lost forty pounds, but after he was given milk diet he improved rapidly and finally sufficiently recovered to go to work, but the tumor was still apparent and the test meals gave the same results. A certain number of cases of this kind seem to show the presence of free hydrochloric acid, and the matter vomited showed that we must be slow to draw conclusions.

Dr. W. W. JOHNSTON said that the improvement in these cases is so marked that there must be some explanation, and it may be in part that the gastric catarrh which accompanies these troubles is improved by the treatment. A case of cancer of this kind gets better under treatment and often goes back to solid food and gains flesh, but in the end dies. This goes on to show that while our treatment is not curative it is beneficial.

Dr. D. D. STEWART of Philadelphia, in referring to Dr. Welch's diagnosis of his case, said he thought it was a case of cancer and treated it as such, and as for the gaining of weight in these cases, after treatment, one man went from 110 to 175 pounds.

Dr. F. P. KINNICUTT of New York said that even without a change of diet cases improved. In one instance he noticed a gain of twenty pounds and now the man is getting better.

Dr. E. G. JANEWAY of New York referred to two cases of gastric carcinoma in which there was a gain of forty pounds after washing out the stomach and giving proper treatment, but four months later the patient declined, had severe pains, returned to liquid diet and in three months died. The usual diagnostic rule of urea excretion failed in this case; the temperature for eight months was from 101 to 102 degrees. In one case there was also a change in urea secretion, and the patient, who was in bed, could always take food better sitting up than when lying down, the position probably removing the cancer from contact with the food.

Dr. CHARLES G. STOCKTON of Buffalo said that it was remarkable that in some cases of gastro-enterostomy successfully performed there was gain in weight and improvement. There may have been food stagnation with loss of weight, for if that ceases from whatever cause, the patients will gain weight.

Dr. A. H. SMITH of New York referred to a case of his in the Presbyterian Hospital in which there was the presence of hydrochloric acid but no lactic acid. The patient was very miserable so that he could not get out of bed, but on treatment he rapidly grew better and acted as assistant in the ward. He returned to his home and for five months had fairly good health, but later on grew worse and died. Evidently he had a cancer.

Dr. D. D. STEWART said, in conclusion, that his patient was exceptional in that he did not have to go to bed, and he gained sixty-five pounds.

Dr. SIMON FLEXNER of Baltimore then read a paper entitled

GASTRIC SYPHILIS, WITH A REPORT OF A CASE OF PERFORATING SYPHILITIC ULCER OF THE STOMACH.

He has collected the histories of cases of Chiari. In 243 cases of syphilis which came to autopsy, two were evidently cases of ulcer of the stomach due to this trouble. Some cases are hereditary and some are acquired. In the case he refers to, the history dates from 1892; the death occurred in 1896. The patient had ascites and edema of the lower extremities and the scrotum. The ascites was tapped, grew less, and the fluid was inconsiderable. Death came suddenly after a hearty meal. Just before death there was great abdominal pain and tympanites. The autopsy was a sero-fibrinous peritonitis. There was a perforation in the base of the stomach. There were several organisms in the peritoneal contents, among which were the bacillus aerogenes capsulatus and the colon bacillus. The liver contained a large gummatous mass. The diagnosis was based on microscopic examination.

Dr. I. ADLER of New York then read

SOME OBSERVATIONS OF CARDIAC SYPHILIS.

He spoke of the various forms of syphilis in the heart, such as gumma-endometritis, etc. The anatomic diagnosis is not infrequently doubtful. He examined the hearts of young infants. In four hearts of babies of a few months old he found signs of syphilis. It is hard to make this trouble out, for to the naked eye the heart is apparently normal. He hardened them in formalin and stained and examined them. In two there were no signs of syphilis. In the other two characteristic lesions were found. In one infant who was two years old there was one small patch found in the internal coat and a slight infiltration. The other child died at the age of 3½ years, from what was apparently catarrh, and there were no signs of disease in the heart, to the naked eye. He thinks that the blood vessels are often the primary seat of the disease and the muscles are attacked later. In many cases the disease might be arrested early, if a diagnosis were made, but as a rule the disease is advanced too far when the clinical symptoms appear. There are really few distinctly diagnostic symptoms to the naked eye to distinguish it from other troubles. Often traces of syphilis can be found in other organisms than the heart. He thinks it is necessary to make methodic examinations of each case and to suspect syphilis in every case of heart disease, and give the iodid and mercury, as well as digitalis and other such drugs, and if it is not syphilis no harm will be done.

Dr. E. G. JANEWAY of New York then read a paper entitled

DANGER OF ERROR IN DIAGNOSIS BETWEEN CHRONIC SYPHILITIC FEVER AND TUBERCULOSIS.

He briefly reported a number of cases of a similar character. One case was a young man who had been sent to a sanitarium for consumption. He continued to grow worse, and an examination revealed syphilis. No tuberculous symptoms could be found and hepatitis had been the cause of his ill health. He promptly recovered under treatment. In one case there was fever, sweating, and pain in the side. He had been advised to go to the country on account of supposed tuberculosis of the right lung, but a later examination showed two ribs to be diseased and a small sinus apparent. Antisyphilitic treatment removed this trouble. He instanced several cases of this kind; one case in which a prominent physician had made a diagnosis of tuberculosis when no such lesion existed. In one case of a young child he suspected syphilis, but was persuaded into believing it a case of tuberculosis, and sent it to the hospital for treatment. The child died and the autopsy revealed the true condition. The specialist may be able to recognize these cases, but it must be remembered that the majority of them fall into the hands of the general practitioner. In obscure cases of apparently tuberculous miliary sepsis, syphilis should always be borne in mind as to the possible cause.

Dr. I. E. ATKINSON of Baltimore said that nothing shows more clearly the want of accurate attention on the part of the medical profession than this very frequent presence of syphilis complicating all sorts of obscure conditions. This is especially true in the class of cases referred to. The disease may simulate continued fever, although fever may be remittent in character, which may make us suspicious. He referred to a sailor in a hospital, from Calcutta, who had an enlarged liver and a severe cough, but no tubercle bacilli could be found. Albumin and casts were both present. He denied having syphilis and hepatic abscess was suspected and he was aspirated several times without result. The plasmodium of malaria was looked for but not found. His right testicle began to enlarge. He was given iodid of potash and in three or four days he had no fever and recovered entirely. It is in the late cases where the fever is apt to be obscure.

Dr. MELTZER of New York, said that Hansemann reported a number of apparent cases of tuberculosis in which no tubercule bacilli were present, and which recovered under the use of iodid.

Dr. F. P. KINNICUTT of New York, said that many had seen the presence of syphilis at the autopsy when they had not suspected it during life, and he also described some cases.

Dr. CHAS. G. STOCKTON of Buffalo, said that an examination of the blood may assist in the diagnosis, and that tuberculin test might be used to advantage in these cases.

Dr. V. C. VAUGHAN of Ann Arbor, said that the two affections might exist in the same person, and in many cases would give considerable trouble. The temperature curve is greatly different from that in tuberculosis. The finding of the bacillus of tuberculosis would confuse us.

Dr. JAMES TYSON of Philadelphia, thought that the use of antisyphilitic treatment would make the diagnosis.

Dr. JANEWAY said he had examined the blood for the plasmodium and leucocytes; the tuberculin test was not used; the antisyphilitic treatment furnished the test and produced a cure. In some cases it is extremely dangerous to use the tuberculin test. He mentioned a case in which such bad results had been brought about that the patient could hardly be induced to keep from suing the physician for malpractice. He has seen the two diseases in the same person. He used iodid of potash and bichlorid of mercury in combination with cinchona.

Dr. E. G. CUTLER of Boston, referred to a case in which tuberculin gave the characteristic action when no tuberculosis was present.

Dr. WM. S. THAYER of Baltimore, then read a paper on

NEPHRITIS OF MALARIAL ORIGIN.

He dealt largely in statistics based on cases in the Johns Hopkins Hospital. He referred to the frequency of albuminuria in malarial fever with other diseases. In looking over the statistics, and in his own cases, he found that a large proportion of cases of malarial fever had albuminuria and casts but principally the cases of estivo-autumnal fever. In 758 cases of malarial fever there was albuminuria in 321 and casts in 121. Albumin was present in nearly one-half the cases. He had nineteen cases of acute nephritis of malarial origin. He found that in general his own statistics agreed largely with others he had collected, except in some few cases. In scarlet fever there was a certain number of cases of albuminuria and casts, also in diphtheria and typhoid fever. Albumin is probably present in about one-half the cases of scarlet fever, and malaria seems to be the cause of more cases than is generally supposed, but not as often as in yellow fever, and for this reason we can not place too great reliance in the presence of albumin in yellow fever. Out of 152 cases of malaria there were fifty-two cases of nephritis. Seven were tertian, ten estivo-autumnal and three of varied type. There were thirteen recoveries and four deaths. Nine were doubtful. He also gave statistics of the age, sex and color of the cases. He thinks there is a possible etiologic relation between nephritis and malarial infection.

Dr. F. FORCHEIMER of Cincinnati, wished to corroborate the statement as to nephritis in estivo-autumnal fever. There are many such cases in Cincinnati. The kidney rarely escapes, and he found the majority of cases in children. He had found in a certain number of cases of nephritis the presence of a pigment which probably came from the blood. The urine was light above and dark below. There was blood pigment and casts. In most of them the pigment was a reddish-brown. This cause was described to be due to plasmodium, but he has studied a number of these cases and has found the pigment in connection with malarial fever. He showed a specimen from a child sixteen months old. He has made no complete chemic analysis but thinks it may be melanin.

Dr. WM. OSLER of Baltimore, in referring to these interesting cases of Dr. Thayer, said that the importance of albumin in the diagnosis of yellow fever from malaria lay in the fact that in yellow fever the albumin was found early, in the first twenty-four or forty-eight hours. In the hospital they had had no single case of malarial hematuria which could be attributed to the use of quinin, and many physicians in the South hesitate to use quinin on account of this complication.

Dr. JACOBI asked if the findings of Dr. Thayer were the same for every year. A number of observers say that they find no albumin for a number of years, and then in a large number it is found. He had seen a number of cases but none had had albuminuria.

Dr. I. E. ATKINSON has for years felt convinced that malaria was an important factor in nephritis, and it had been pretty constantly found in every outbreak of malarial fever, more so than we usually think. One of the difficulties in the way of decision is to know whether the nephritis is due to the malaria or the malaria to nephritis. Another point to note is whether in localities where mortality statistics are kept it is found that kidney complications are more common than where malarial fever does not exist. In Maryland there have been no vital statistics until the present time, but in Baltimore the records are carefully kept.

Dr. TYSON said that he noticed in Philadelphia what Dr. Jacobi noticed in New York, that some cases were of a mild type, and that there were severe cases at other times.

Dr. M. H. FUSSELL of Philadelphia, said that in Frankford, Philadelphia, he had seen a number of cases of malaria, but in none had he found nephritis and in none albuminuria.

Dr. THAYER, in answer to Dr. Forcheimer, said that he had seen very few cases in children; that only recently had there been a children's ward in the Hopkins Hospital, but he had an interesting case referred to him by Dr. Northrup. He has not had a case in which quinin has had an influence. Dr. Rampoldi of Rome, writes that he has never seen a case of quinin hemoglobinuria recorded from the Roman Campagna. He noticed that there were different epidemics in different years. In the 216 cases sixteen occurred in 1896, and last year there were very few cases.

Dr. W. T. COUNCILMAN of Boston, then read a paper entitled

ACUTE INTERSTITIAL NEPHRITIS,

an acute non-suppurative inflammation of the kidney, characterized by cellular and fluid exudation in the interstitial tissue, accompanied by but not dependent upon, degeneration of the epithelium. The interstitial lesion consists in the presence of cells similar to those described by Unna as plasma cells. These cells are due to emigration from blood vessels and proliferation of the emigrated cells. They are formed in other organs, chiefly in the spleen and bone marrow from lymphoid cells, and are carried to the kidneys by the blood. Accumulations of plasma and lymphoid cells may be found in the blood vessels of the kidney without any interstitial lesions. Such cases of acute interstitial nephritis are frequently found in the infectious diseases of children, notably in diphtheria and scarlet fever, but they may be found under other conditions.

Dr. WM. H. WELCH of Baltimore said that this work of Dr. Councilman was of great value. He has had opportunity to study these specimens and he agrees with him as to the origin. They have emigrated from the blood cells and from the lymph vessels. It is interesting as evidence that the lymphoid cells can emigrate as well as the polynuclear cells. He spoke of this last year in connection with Dr. Gilchrist's paper, and reported

two effects of chemotactic stimuli quite distinct from each other. We have three sorts of cell accumulations: plasma cells, polynuclear formations and lymphoid cells. It is a great advance in technique that we are able to differentiate these different cells.

Dr. TYSON said this was an exceedingly interesting study and showed the results of careful investigation.

Dr. COUNCILMAN said in conclusion, that some of the cases recorded were due to bacteria. These plasma cells have something to do with inflammation, and may possibly have some connection with the healing of wounds.

Dr. R. H. FITZ of Boston, then read a paper on

A CASE OF MYXEDEMA AND ALBUMOSURIA; TREATMENT WITH THYROID EXTRACTS; DEATH.

He said: The case is reported for the purpose of calling especial attention to the occurrence in myxedema of a rare condition (albumosuria). It is, therefore, desirable in examining the urine in myxedema to bear the above fact in mind, since albuminuria is relatively frequent and albumose might easily be mistaken for albumin unless the customary test with heat and nitric acid be duly controlled. The communication has an additional interest in showing that, despite temporary improvement under the use of thyroid extract, this remedy is not infallible in myxedema. He gave the history of the cases and spoke of the difference between albumose and albumin, and then tested a specimen in the presence of the association. The addition of nitric acid caused the precipitation of albumose, which heat dissipated, and the application of cold caused it to return. He showed several illustrations.

Dr. V. C. VAUGHAN said that these are rare cases. The presence of a small amount of albumose is very common; some say that it is always normally present in small amounts. So far as he knows this is probably true, but the large amounts as noted are quite rare.

Dr. FITZ said, in conclusion, that his paper contained references to these illustrations of small amounts and he had mentioned the work of Bence Jones. There have been seven cases recorded in Germany and Holland. He thinks that often these cases are mistaken for albuminuria, and they are really more common than is supposed.

SECOND DAY.

Surgeon-General GEORGE M. STERNBERG, U. S. A., read a a paper entitled

BACILLUS ICTEROIDES (SANARELLI) AND BACILLI X (STERNBERG),

in which he referred to his first work; then the second paper on the subject, and in it he replies to Sanarelli's article in the *Annales de l'Institut Pasteur* and *Centralblatt für Bakteriologie*. The paper copies in part his work and has done him great injustice. He regrets that it is necessary to correct wrong statements made by Dr. Sanarelli. He quoted what Sanarelli says he said and then stated what he really did say. He thinks there is not one micro organism which can be indisputably said to be the specific organism but he also thinks that one of them may be. His work is not taken up anew but is a continuance of what he began some time ago. His bacillus x was found in the contents of the intestines in some cases, but Sanarelli did not find any there at all. It is very bad teaching to say that the organism can not be found in the contents of the intestines, for if it were not there, there would be no necessity for disinfecting the clothing, etc. The alvine discharges of the sick are very dangerous. Sternberg did not make any clinical notes because he had not the time, but he had great experience while Sanarelli had no experience in the disease. Sternberg had had the yellow fever in 1875, and he had seen a great many cases and always made an autopsy and collected material for bacteriologic examination, and while in Havana he personally made forty-three autopsies in four months, and he always made his autopsies from two to five hours after death. This was against the law in Havana, but the authorities connived at it and assisted him greatly. He obtained the cultures from Dr. Roux, in Paris, of Sanarelli's icteroid bacillus, and there was a difference between them. The organism of Sternberg bacillus was motile in Havana, but here it was not, although the flagella could be seen stained. He passed the culture through guinea-pigs and found that the bacilli became motile again. If neither organism is the specific organism of yellow fever, then one is just as good as the other. Sanarelli experimented on man, but Sternberg has not done that yet.

Dr. A. C. ABBOTT of Philadelphia, asked if Dr. Sternberg had had a parallel experience with the colon bacillus and others of that kind for comparison's sake. He feels, personally, that the two organisms are identical. He questions its virulence. The colon bacillus is sometimes virulent and sometimes not.

Dr. V. C. VAUGHAN of Ann Arbor, said that Dr. Novy had begun work on Sanarelli's germ a year ago and there is no proof that Sanarelli's germ is the cause of yellow fever. His experiments on man are simply ridiculous. He did not know what was the matter with the man he used in the hospital, and when he says the case showed marked effects, we do not know what he means. We might get marked effects from other germs. He does not believe that yellow fever is caused by the organism, and thinks, as they do in the South, that yellow fever never originates in the North. Sanarelli's germ was not affected by freezing and thawing, and his observations on agglutination were made in a test tube, and it is absurd to study agglutination in that way. The blood of his students in the university had caused agglutination and they were healthy men. Sanarelli's germ is very virulent and caused agglutination.

Dr. WM. OSLER of Baltimore, said that much stress had been laid on the work by Dr. Archinard in the recent epidemic that seemed most favorable to the Sanarelli bacillus. The experiments of Sanarelli on man are not ridiculous; that is not the proper word. Almost every dose of medicine is an experiment. We do not know, for instance, what effect iodid of potash will have in certain conditions. It is only an experiment. The experiments in medicine should be recognized.

Dr. STERNBERG said that we want comparative experiments with the colon bacillus. This disease may be a fecal disease. The typhoid bacillus may be an off-shoot of the colon bacillus. Yellow fever has a toxin and the tetanus bacillus is also hard to find. We are not ready to accept Archinard's work because it is so much better than Sanarelli claimed.

Dr. THEOBALD SMITH of Boston, then gave a résumé of "Comparative Studies of Bovine Tubercle Bacilli and of Human (sputum)." This was a résumé upon fever cultures of tubercle bacilli from human sputum and of five cultures from cattle. One culture each from the pig, and the horse and the cat were also included in the series. Differential characters relating to the morphology of these different bacilli, their biology and pathogenic power as tested upon guinea-pigs, rabbits, pigeons, mice, cattle, was discussed. The bovine bacilli are sharply distinguishable from the human bacilli by their greatly augmented pathogenic power. The paper closed with a discussion of the probable value of the differential characters in definitely tracing the sources of human disease occasionally referred to the lower animals, especially cattle, and of the necessity of a closer comparative study of tubercle bacilli from different forms of human tuberculosis.

Dr. ABBOTT said that Dr. Smith had given much attention to this subject, and there has appeared a similar piece of work by Rabinowitsch. He claimed that some butter contained the tubercle bacilli.

Dr. SMITH, in reply, said he had never found tubercle bacilli in butter, and that was outside of the work he had outlined.

Dr. OSLER said it was interesting to determine whether the bacillus causing the lesions of scrofula had the same differences as the other organisms and as the difference in animals, and the difference in inoculation in guinea-pigs, rabbits, etc. Fever is an important prognostic sign.

Dr. SMITH said that this was in his paper but he had passed it by as the paper was so long. He referred to the recent work of Euclaire. He had endeavored to help this work by selecting four cases of tuberculosis of different kinds and he inoculated guinea pigs in the abdomen and the inoculation proved fatal to all.

Dr. SIMON FLEXNER of Baltimore, then read a paper entitled "Pseudo-Tuberculosis Hominis Streptotricha." He first spoke of streptotrices in general, and then described a case, that of a colored male, aged 70 years, who presented the symptoms and physical signs of pulmonary and peritoneal tuberculosis. No sputum was obtained. The autopsy exhibited extensive consolidated foci in the lungs, which resembled, in gross appearances, areas of caseous pneumonia and nodules in the peritoneal cavity which were indistinguishable from true tubercles. The bacteriologic examination revealed no tubercle bacilli, but a micro-organism in the lungs and "tubercles" which belong to another genus, and for which the name of streptothrix pseudo-tuberculosa is proposed. This is an exceptional case but these organisms ought to be thought of and always looked for in doubtful cases.

Dr. S. J. MELTZER and T. S. CHEESMAN of New York, then read a paper entitled "An Experimental Study of the direct Inoculation of the Spleen with Micro-organisms, and a Contribution to our Knowledge of the Importance of the Lesion of a Body-tissue for the Settlement and Development of Bacteria within it." It was the result of a long series of experiments

in which organisms were inoculated and injected into the spleen, and after a few hours autopsies were made which showed that the organisms had disappeared from the spleen and were found in other organs of the body, while the culture in the spleen is usually sterile. Are these bacteria destroyed in the spleen or are they carried out? The tying of the portal vein did not prevent the spleen from being sterile. When certain parts of the spleen were ligated they were found to contain bacteria, and when the bactericidal power of the blood is exhausted the bacteria multiply very rapidly.

Dr. WELCH said that this demonstration was very welcome but hardly seemed conclusive evidence that bactericidal substances are less in the spleen than elsewhere. The ligation of the spleen caused the appearance of the bacilli. It is likely that the bacteria in the ligated areas is analogous to the bacteria found in cauterized areas. They were there because the spleen was damaged.

Dr. A. JACOBI of New York, in referring to these statements, said that when these tissues are normal we do not find bacterial invasion. Diphtheria organisms will not grow in a healthy throat with the exception of the healthy tonsil. Tuberculosis will settle in the ends of the bones because there circulation is slower. The spleen changes in the course of the day. After meals it is larger and there are many organisms in it. A person has chronic malaria and is given a large dose of quinin, and then there comes on a severe chill because the quinin contracts the spleen and it is squeezed like a sponge, and the chill is the response. He has noticed the same thing in giving ergot in malaria.

Dr. MELTZER, in referring to Dr. Welch's statements, said he agreed with him. He also replied to what Dr. Jacobi had said.

Dr. M. H. FUSSELL then read a paper on "Acute Leucemia," in which he described two cases of his own. Fifty-six cases had been collected in all, and statistics showed that it was most common between the 10th and 30th year. Five cases were over 40 years old; thirty-three were males and twelve were females. He gave a most careful clinical history of these two cases and showed the specimens under the microscope.

Dr. OSLER, in discussing these cases, said that the limit of sixty-three days for an acute case was rather narrow. There are cases which are called acute which run from three to four months. He has a patient now with enlarged glands, and has fever, and this is practically an acute case. Glandular enlargement often disappears under treatment with mercury.

Dr. E. G. JANEWAY of New York, said that out of seven cases that he had seen, one had acute glandular enlargement; one had subacute leucemia with enlarged tonsils.

Dr. F. C. SHATTUCK of Boston, asked if there were any autopsies held in the cases that Dr. Fussell had quoted and in his own cases. Dr. Shattuck also related a case of his own which was sent to him by another physician who said it was leucemia, but when he saw the case he thought it was one of kidney trouble. Dr. Fussell said that autopsies had not been made in all the cases. He said he had excluded many cases collected by Ebbstein which were doubtful, especially those cases in which no autopsies were performed.

(To be continued.)

Ohio State Medical Society.

Fifty-third annual meeting, held in Columbus May 4–8, 1898.

The Address of Welcome, delivered by Dr. E. J. WILSON of Columbus, was responded to by the President of the Society, Dr. WILLIAM H. HUMISTON of Cleveland.

The first paper read was on

PARTIAL CATARACT.

by Dr. C. F. CLARK of Columbus. He said: Even among young people some opacity of the lens is often present although undetected, and as age advances certain changes invariably take place in its character, and in a large proportion of those who are never led to suspect it, a careful inspection will reveal the presence of incipient cataract. It is often only in its advanced stages that those who have cataract present themselves for treatment. The average age of the members of this Society is such that it is probable that an investigation would reveal the fact that a large number of those who make complaint of nothing more than a slight dimness of vision would find upon careful scrutiny that either the radiating striæ or the outer layers of the periphery of the crystalline lens were undergoing changes which would justify the diagnosis of partial or incipient cataract. It does not follow that all of those in whom such changes are found should look forward to the development of mature cataract or that of necessity anything should be done for them, but it is a fact that in a certain proportion of these cases asthenopic symptoms do present themselves which require attention. These symptoms are more frequently observed when changes in the lens make their appearance before the period in which the accommodative power has been gradually reduced by the advance of presbyopia. If the rigidity of the lens which often accompanies opacity makes its appearance before the natural development of presbyopia has caused a cessation of the activity of the ciliary muscle, the action of that muscle in its efforts to relax the suspensory ligament and thus bring about accommodation being unavailing, leads to congestion and in many instances to pain and discomfort. In a large proportion of cases the development of opacity of the crystalline lens is due to degenerative changes in the choroid coat or the whole uveal tract. When true cataract develops there is usually, even in the early stages, a marked difference in the degree of transparency of the various portions of the lens. The nucleus which in the normal eye is more dense than the cortical layers, may become proportionately still more dense, thus accentuating the distinction between nucleus and cortex. The opacities of the outer layers of the lens may assume a great variety of forms in accordance with the portion of the cortex affected, and these varying conditions will be accompanied by corresponding variations in the symptoms. Surprising as it may seem, dimness of vision not infrequently coexists with well-defined incipient cataract. Dimness of vision, therefore, while usually present, may be absent, and it may result from so many other causes that its value as a symptom is comparatively slight in the early stages of the development of lenticular opacity. As long as the central portion of the lens remains clear the vision may be excellent. The diminution of vision usually approaches so insidiously that, unconsciously, the patient often adjusts his standard of acuity of vision to that of which his own eyes are capable. When a patient is so situated that he can afford to await the maturity of a cataract it undoubtedly adds to our assurance of success and every chance in the patient's favor should be taken advantage of when dealing with so serious a matter as the restoration of vision, but in a number of cases on which the essayist had operated during the last few years, in which the circumstances made it necessary to remove immature cataracts, the results have been so admirable as to convince him that we have often unnecessarily delayed operation on account of incomplete opacity of the lens. Since we have learned to adhere strictly to the principles of asepsis, the danger of an operation upon an immature or partial cataract has been materially reduced, and if the patient is so situated that years of waiting mean years of privation, and that pitiful relaxation of his hold upon the world and the reduced physical condition from the mental depression that so frequently accompanies blindness, we should undoubtedly operate even if the cataract is not mature.

Dr. F. O. MARSH of Cincinnati then read a paper on "Some Medical Aspects of Capital Punishment." After reviewing the usual modes of inflicting capital punishment he referred to the use of drugs for this purpose. The only poisonous drug of any prominence or importance which is known to be absolutely free from pain in its action, morphin, is slow in action, might be rejected by the stomach and might prove a failure even when given in a supposed fatal dose. Probably the best agent would be chloroform. The use of chloroform is extremely simple, devoid of all complicated and cumbersome paraphernalia and is the most inexpensive. Death by this means is essentially painless and perhaps would supervene in a half hour.

Other papers were: "Functional Heart Murmurs," by C. F. HOOVER of Cleveland; "Psychic Treatment of Diseases," by PHILIP ZENNER of Cincinnati.

In "Intestinal Obstruction, Operation and Recovery, with Report of Case," by SHERMAN LEACH of Mt. Sterling, the essayist believed that in such cases operation should be resorted to before fatal peritonitis develops. After due trial with the various remedies, calomel, oil, salines, aided by rectal enemata of various kinds, if the bowels are not opened and any symptoms of obstruction exist, prevent peritonitis by operating at once, without waiting for symptoms of peritonitis. The case reported was one in illustration.

NOTES ON SYPHILITIC LARYNGITIS, WITH CASES

was read by HOWARD STRAIGHT of Cleveland. He said: The four conditions of the larynx most often requiring differentiation in a given case are lupus, carcinoma, syphilis and tuberculosis. Lupus of the larynx ordinarily attacks this organ secondary to cutaneous lupus. As a rule it attacks the epiglottis first. It is characterized by a slow but progressive destruction of tissue. If there is any question as to its being syphilis in a given case it can easily be settled by administering

increasing doses of iodid of potash. If the diagnosis lies between carcinoma and lupus, the microscope might have to decide the question. Carcinoma of the larynx is a rare disease. While carcinoma may attack any part of the larynx, it usually attacks the natricular bands first. The diagnosis by the aid of the microscope is as a rule easy. In certain cases the diagnosis ought not to be positively made until the patient has been subjected to increasing doses of iodid of potash. Tuberculosis of the larynx is a common disease. Anemia of the larynx, the pear-shaped condition of the arytenoids, the swelling of the interarytenoid space, the associated pulmonary tuberculosis, ordinarily make the diagnosis of the laryngeal condition easy. If any question exists in the mind of the laryngologist, the administration of increasing doses of iodid of potash will easily exclude specific disease. Syphilis of the larynx is a common disease. If mistaken for any one of the other diseases mentioned, and increasing doses of iodid of potash are not administered, the results may be deplorable. Such medication can in no event do great harm. If lupus or carcinoma, its administration for a short time is a matter of little consequence. In laryngeal tuberculosis anything tending to disturb the gastro-intestinal tract would be undesirable, and yet if any doubt as to the condition of the larynx exists the administration of the remedy is extremely valuable. Laryngeal tuberculosis and syphilis of the larynx may exist together. In such a case the increasing doses of iodid of potash ought certainly to be given. Theoretically the diagnosis of the conditions mentioned is easy; however, certain cases occur in which a positive diagnosis can not be made.

A paper on "Movable Kidney" was read by YEATMAN WARDLOW of Columbus.

"Monstrosities vs. Maternal Impressions," by GEORGE S. COURTRIGHT of Lithopolis, was a report of three monstrosities in three consecutive pregnancies. The first child was born after the mother had nursed the father while recovering from an accident. The other pregnancies followed in rapid succession. The Doctor gave it as his opinion that if the mother did not become pregnant again for four or five years, she might have a healthy, well-formed child. Almost five years after the birth of the last deformed child, the woman was delivered of a healthy, well-formed child, now a fine intelligent boy.

A paper on "Irrigation with Salt Solution and Other Fluids in Surgical Practice," was read by HUNTER ROBB of Cleveland.

On Wednesday evening there was a reception to members and visiting ladies, at the Great Southern Hotel.

SECOND DAY.

The Society was called to order at 9 A.M. The first paper was "A Summary of Certain Studies in the Morbid Anatomy of Epilepsy," by A. P. OHLMACHER of Gallipolis, and was a report of the results obtained from eighteen autopsies. The most prominent anomaly in these cases was the large thymus body, and it was this peculiarity which led to the study of the literature, in which at least two other morbid conditions were found with the same anatomic features as were presented by these cases, namely, laryngismus stridulus and sudden deaths in adults with no assignable reason. Taken in their entirety, the morbid conditions found in these cases, and which have always been found in thymic asthma and thymic sudden death, make a picture of what the German pathologists style the "lymphatic constitution." Aside from the hyperplastic thymus there is a general lymphatic hyperplasia and a narrowing of the arteries, and often evidence of rickets.

The next paper was on

URIC ACID

by Dr. D. N. KINSMAN of Columbus. He said that uric acid may be retained in the body either as uric acid or urates. It is not a poison, and when retained in the body its effects are mechanical. It may exist free in the blood serum or be precipitated about the joints as urate of soda, or in other organs, or after a more or less prolonged retention it may be discharged in lithia acid storms through the kidneys. Its retention in the body is marked by a diminution of the urine and increase of vascular tension. Its discharge is accompanied by increase of urine and decline of vascular tension. The amount of uric acid which may be present in the body depends upon the aliments which are ingested, and the integrity of digestion and excretion, exercise, etc. Heredity plays an important part in the production of the uric acid diathesis. All persons having a hereditary or an acquired uric acid diathesis are in a state of unstable equilibrium, and circumstances determine whether the outcome shall be lithemia, gout, migraine, fibrosis, or some other dystrophy. The relations of migraine, epilepsy and asthma have long been recognized. The clue which joined them has not been very clear. That indigestion and putrefying contents of the intestines have an incidental relation to epilepsy and migraine has long been recognized, and it has been the custom of the profession to advise light suppers of milk and bread, because it has been learned that such a regimen was influential in warding off nocturnal seizures. The essayist has inherited migraine, which has been hereditary in five generations, and with it other gouty manifestations in the enlarged metatarso-phalangeal articulation of the great toes, urinary calculi, and frequent uratic deposits in the urine. On a few occasions, swelling and extreme pain in the great toe joints have been suffered, as well as lithic acid storms. Respiratory distress in fast walking is a precursor of the headaches, which subsides after the attacks. As the attack declines the quantity of urine increases and often lets fall deposits of uric acid. After these storms, no amount of exposure, nor indiscretion in diet, loss of sleep or fatigue, which are very potent in causing the headaches at other times, cause it for some time thereafter, until uric acid has again accumulated. In addition to these symptoms, lithemia causes vertigo, slow pulse which often intermits, and vascular tension. The patient is irritable, moody, hypochondriac and hysteric. They have a great variety of digestive disturbances, disordered vision and flying pains in the limbs and about the joints. Imperfect digestion and dilation of the stomach are associated with large uratic deposits in the urine. Uric acid causes cutaneous eruptions, tonsillitis, pharyngitis, bronchitis, asthma or aggravates them. It retards the healing of wounds, builds stone in the bladder and infarctions in the kidneys. It causes a world of distress and then has gout to fall back upon. When the diagnosis is established, the treatment is obvious. Aside from the use of colchicum, there is nothing better than alkaline waters. Beyond this the food is the most important consideration. Meats, soups, glands which contain large amounts of uric acid, should be used sparingly or not at all. Carbohydrates and vegetable albuminoid substances, with no alcoholics, should constitute the diet. Exercises frequent and prolonged, as well as methodic, should be prescribed.

Other papers were: "Lumbar Punctures," by J. R. WENNER of Cleveland, which reviewed the literature on the subject and reported forty cases that occurred under the care of the essayist: "Removal of the Cecum for Malignant Disease," by J. C. OLIVER of Cincinnati.

HENROTIN'S METHOD IN PELVIC ABSCESS

was presented by J. C. REEVE, Jr., of Dayton. The plan is as follows: Steady the cervix by vulsellum forceps and incise the vaginal mucous membrane at the cervico-vaginal junction either just behind or just in front of the cervix, avoiding the sides of the cervix. The anterior or posterior fornix is selected according to its respective nearness to the collection to be reached. After cutting through the membrane, continue the dissection bluntly by means of the finger or of the closed blunt scissors, adhering to the middle line of the uterus as in hysterectomy. By keeping thus against the firm tissue of the uterus, one can not go astray and is on safe ground. After getting quite above the cervix it is then safe to go straight to the objective point, provided the dissection is done by the finger aided by counter pressure by the other hand through the abdominal walls. After the fluid is reached the channel may be dilated, or if this does not enlarge it sufficiently a vertical incision in the middle line can be added to it, reaching short of the rectum or bladder. The cavity can then be packed or drained. It is the custom of the essayist, especially when there is much odor, to place a two-way tube, made by stitching two large rubber tubes together. The smaller, carrying in the solution, reaches to the top of the cavity; the larger drains its lowest parts. Both reach outside the vagina and so permit a frequent irrigation (with mild antiseptics), with no disturbance to the patient or attendant and sometimes requiring not even a bedpan. Several cases were reported.

In the "Incision less than one and a half inches in Appendicitis," by N. STONE SCOTT of Cleveland, he said that the only possible objection to the incision less than one and one-half inches is the delicacy of touch required and the substitution largely of touch for sight. Given the necessary tactile education, however, the advantages are the absence of liability to hernia, reduction of the period of convalescence and the cosmetic effect. Several illustrative cases were detailed.

THE OBSCURE CASES OF GALL BLADDER DISEASE

was by EDWARD S. STEVENS of Lebanon.

In a large number of the obscure cases of gall-bladder disease there will always be more or less doubt as to whether the gall-bladder and ducts are diseased at all. With a reasonable degree of certainty as to the location of the disease, there will always be more or less doubt as to the character of the disease, for there are other forms of disease which produce gall-bladder

disturbance besides gallstones and the inflammatory affections. In such cases the symptoms not yielding to treatment and being essentially chronic, it is eminently proper to advise an exploratory operation for the purpose of making certain the diagnosis. This may be advised in the first place because in the hands of one who is skilled in this work the danger is almost *nil*. In the second place the propriety of such advice may not be questioned because the exploration is the first step to be taken in a radical gall-bladder operation, and most of the chronic gall-bladder diseases require local treatment rather than medicinal if a permanent cure is to be effected. Even though an incurable malignant disease be discovered upon opening the abdomen, it is a great satisfaction to know what condition is present. It has happened in many cases that relief followed the simple exploration, although the abdomen was closed with the knowledge that malignant disease of or near the gall-bladder was responsible for the symptoms for which relief was sought.

The special order of business at the evening session was the Address in Medicine by H. A. HARE of Philadelphia. The address was upon the treatment of typhoid fever, the use of opium in diabetes, the treatment of aneurysm, the treatment of pulmonary tuberculosis, burns, improvements in the methods of producing anesthesia and the importance of recognizing the vasomotor system as a factor in disease and in the production of disease.

THIRD DAY.

BILATERAL PARALYSIS OF THE POSTERIOR CRICO-ARYTENOID MUSCLES OF THE LARYNX, WITH REPORT OF A CASE,

was presented by ALBERT RUFUS BAKER of Cleveland. The case reported was one in which a tracheotomy was made to relieve dyspnea due to paralysis of the posterior arytenocricoid muscle. The patient now wears a tracheotomy tube constantly, with a cork in it tied to a string. Whenever a suffocative attack comes on, he pulls out the cork and normal respiration is immediately restored, he then replaces the cork and soon goes on about his work as usual. A few weeks ago the patient secured a life insurance policy for $2,000 in an industrial life insurance company. During the first year after the operation the patient had some difficulty in securing a satisfactory tracheotomy tube; they would break and get out of repair, and it became necessary to have a new one at short intervals, and they were also hard to keep clean, and from their irritating properties would frequently cause excessive granulations to spring up around the tube. To overcome all this, the metal tube was replaced by a soft rubber one, which was much more satisfactory.

Dr. P. J. KLINE of Portsmouth, reported "A Case of Cirrhosis of the Liver." The patient did not present marked jaundice, and in many respects the case was anomalous. Thus there was no distinct caput Medusæ, although the vessels over the abdomen were inlarged. The essayist felt that he was justified in excluding syphilis and alcohol as etiologic factors in the case. Unfortunately no postmortem was secured.

Dr. HENRY W. BETTMANN of Cincinnati, read an interesting paper on "The Clinical Importance of the Position of the Stomach." In few cases do we find the stomach and other abdominal viscera in the position usually assigned to them by the text-books. But many cases of displaced stomach, as well as of other viscera in the abdominal cavity, show no symptoms of disease or inconvenience therefrom. In many cases in which unpleasant symptoms were traceable to such malposition, the essayist had found the patients were greatly relieved by wearing an abdominal supporter.

"Intracranial Complications of Aural Disease; Prognosis and Treatment," was presented by ANDREW TIMBERMAN of Columbus.

The essayist referred to the frequency of intracranial complications of aural disease, and presented specimens illustrating the operation he would do for chronic aural trouble. It is difficult to say when a case is past redemption by operation. The essayist had seen patients brought in a state of coma, with a very rapid pulse, temperature 105 degrees with stertorous breathing, the coma so deep that an anesthetic was not required for operation, and yet the patient recovered. A last chance is nearly always given by the people who are interested, and these patients should have the benefit of a late operation.

The last paper before the Section was a voluntary paper on "The Dyspeptic Stomach and How can we Secure a Speedy Cure," by Dr. ALBORS of Fulda.

Schulze's Swinging for Infants' Bronchiolitis.—Schilling has been successful in saving a few cases of bronchiolitis in very young infants with apparently grave prognosis, by swinging them according to the Schulze method.—*Münch. med. Woch.*, No. 11.

Medical and Chirurgical Faculty of the State of Maryland.

One Hundredth Annual Session, held at the Hall of the Faculty at Baltimore, April 26 to 29, 1898.

(*Concluded from page 1175.*)

Dr. HENRY M. THOMAS then read a paper on

FACIAL PARALYSIS; A STUDY OF EIGHTY ODD CASES.

He said there was peripheral facial paralysis or Bell's paralysis, and all of his cases were from the medical wards of the dispensary of the Johns Hopkins Hospital. He had 85 cases of which 49 were women and 36 men, the usual proportion. One woman had two attacks on the right side. Of his cases 43 were paralyzed on the right side, 33 on the left side and 2 on both sides. Of the ages, in 1 it was congenital, 5 were between 1 and 10 years, 17 between 11 and 20, 17 between 21 and 30, 21 between 31 and 40, 13 between 41 and 50, 7 between 51 and 60, and 4 over 60 years. In 47 of his cases no cause could be given. In 17 cases exposure was given as the cause, but in many cases the history was very indefinite. Injury was said to be the cause in 8 cases. Twenty-five were from surgical cause and 3 were accidental. One seemed to be caused by removal of an ear, another was from a foreign body in the middle ear, a third from an injury of the lower jaw and a fourth from the removal of a tumor from the front of the ear. Another case was caused by the injection into the jaw of an iodoform oil emulsion for an injury. He thinks that injury is not so common a cause of paralysis as the text-books would have us believe. Great stress is laid on the neuropathic tendency. One case was due to injury by forceps. The symptoms were not very marked, sometimes a slight pain; sometimes the sight is affected; sometimes the hearing.

Dr. JOHN C. BLOODGOOD spoke of a surgical operation in connection with some of those cases, and of the difficulties of avoiding the nerves in some operations.

Dr. THOMAS MCRAE then made a

REPORT ON 150 CASES OF CANCER OF THE STOMACH IN THE MEDICAL WARDS OF THE JOHNS HOPKINS HOSPITAL.

These were 150 cases of primary cancer, except three, which were secondary. Generally the diagnosis was made postmortem. He referred to the age of these cases; six were between 20 and 30 years, one 22, one 24, two 26, and two 28; seventeen were between 30 and 40 years; thirty-eight between 40 and 50; forty-nine between 50 and 60; thirty-six between 60 and 70, and four over 70 years. Of the latter (between 60 and 70), twelve were male and twenty-four female; 131 white and 19 colored. The proportion of the colored in the Johns Hopkins Hospital being seven white to one colored. In eleven cases there was a family history. Thirty-eight had tuberculosis involvement, but there seems to be no connection between the tuberculosis and the onset of the disease. As to habits, seventy-seven used alcohol, eight excessively, sixty-six moderately and three very slightly. Thirty-three complained of dyspepsia, seventeen had had attacks of acute gastritis, eleven had chronic stomach trouble; five came to the hospital complaining of trouble dating one or two years back. Ten had no complaint of stomach trouble at all. Others complained of pain and vomiting and showed the presence of the tumor. The method of onset was also marked. In thirty-nine cases the onset was rather sudden; twenty-six had notice of disease in three months, eight between three and six months, and eight over six months. He then gave statistics of the time and place and manner of diagnosis.

Dr. JULIUS FRIEDENWALD then read a paper on "Latent Cancer of the Stomach." There are two varieties of latent cancer: 1. Those cases in which the gastric symptoms are absent, or so masked by other general symptoms the gastric disease is not suspected. 2. Those cases in which there are no symptoms. The pathologic conditions leading to latency are the position of the growth at neither orifice and a surface not ulcerated. He reported an interesting case.

Dr. OSLER said that he had seen so many cases of cancer of the stomach since he had been in Baltimore that he was almost inclined to think it was a peculiarity of this region. Dr. McRae also discussed this paper.

Dr. JOHN C. HEMMETER'S paper entitled, "The Pathogenesis and Treatment of Gastric Hyperacidity," was then read by title.

Dr. R. TUNSTALL TAYLOR exhibited several children showing "The Necessity of Post-Operative Treatment of Congenital Clubfoot." He emphasized especially that after the child's clubfoot had been operated on the proper instrument should be used and the child looked after until the muscles and other parts should regain their normal condition. Many persons

operate and expect results at once. He also showed several very ingenious instruments for holding the muscles in place.

THIRD DAY—MORNING SESSION.

Dr. HARRY FRIEDENWALD exhibited cases of "Excision of the Ossicles for Chronic Purulent Otitis Media, with Demonstration of Patient." The serious nature of these cases has been recognized, and the rule now is to give the flow of pus every opportunity to escape. The cavity of the middle ear being very small and irregular, containing small bones and bands and membranes, is difficult to drain. In these cases the walls of the middle ear or the attic became carious, and the patient, 16 years of age, came to this condition as a result of diphtheria. He had pain in the ear and, on examination, a large polypus was found reaching beyond the outer opening and the auditory canal. This was removed and afterward the ossicles were removed, on account of caries, and the polypus was curetted. After this the case went on to recovery and the patient is doing well except that he is very slightly deaf.

Dr. THOMAS H. EMORY of Taylor, Md., then reported "A Case of Suppurative Appendicitis; Operation Followed by Fecal Fistula." A colored man, 24 years old, upon whom he operated for appendicitis under most unfavorable circumstances and with the most unhygienic surroundings. The case went on to recovery, there being only a small fistula remaining. The interesting features of this case were: 1. Absence of chills at any time; 2, a moderate range of temperature and the character of the pulse; 3, the symptoms, which two or three days before the operation seemed to be subsiding; 4, at the time of the operation the abscess was apparently ready to break, the walls being extremely pliable in places; 5, the absence of any tumor or fluctuation.

Dr. JOHN D. BLAKE congratulated Dr. Emory on his success in the operation, and spoke of the difficulty surrounding it and also of the necessity of relieving such cases by operative means as early as possible.

Dr. J. W. CHAMBERS then gave a

REPORT OF A CASE OF STAB WOUND IN THE ABDOMEN; EXHIBITION OF THE PATIENT.

The patient was a man who on January 28 had been stabbed with a case or table knife, at the penitentiary, by one of the convicts. There were two abdominal wounds, one to the left of the median line and extending through the abdominal muscles and the omentum, cutting the transverse colon for three inches. There was also a transverse incision through the small intestines. After these injuries the man walked a hundred yards, the intestines protruding, and one hour later was brought to the hospital, and twenty minutes after that was operated on. The intestines were washed, put back and sewed up by Lembert's interrupted sutures, the other wound was treated as an open wound and was more in the region of the liver. There was prompt recovery. The fact that the intestines protruded probably kept the peritoneal cavity free from any contamination. It is interesting to show how much injury can be done to a man in this way without bad results, and then it is also well to note how important a rapid operation is, for within an hour after the injury this case was operated on. He is now apparently well and able to attend to his work, and did not suffer very much from the shock.

Dr. JOHN MORRIS, who is on the Lunacy Board of Maryland, spoke of the man who did the stabbing. He said that in many of these cases who were confined in institutions where there was no work, there came a wave of insanity over them once or twice a year. This man was detained in an insane asylum, and seemed so much better that he was brought to the penitentiary where he stabbed this man, one of the keepers.

Dr. JOHN C. BLOODGOOD then read a paper on "The Transplantation of the Rectus Muscle in Operations for the Cure of Certain Cases of Hernia." The important point to be recognized at the operation is that the conjoined tendon is either obliterated, very narrow or very attenuated; that the lower angle of the inguinal canal has lost its support and therefore something must be substituted for it. He divides all his cases into two large groups: Those cases in which the conjoined tendon is wide and firm and those in which it is practically completely obliterated. Impressed by the large proportion of recurrences in the few cases in which the conjoined tendon has been obliterated, Dr. Bloodgood has devised, and in eight cases performed, a plastic operation in the rectus muscle, bringing this down and so suturing it as to form a support. The procedure is a very simple one. The method of operation is about the same as that followed by Halsted. On inserting the deep sutures, the sheath of the rectus is divided in the direction of the muscle bundles from its insertion through the symphysis pubis, upward for a distance of 5 cm. After the division of the sheath, the outer border of the muscle bulges out, but may be held back by sutures. The deep silver wire sutures are then inserted as Halsted described. During the last few months the operation has been performed several times in the Johns Hopkins Hospital.

Dr. SAMUEL T. EARLE, Jr., then made some remarks on "Rectal Medication by Means of Collapsible Tubes." There has always been a great difficulty in applying ointments and suppositories in diseases of the rectum. Allingham had devised hard rubber tubes, which were well enough in chronic cases, but rather expensive to use for short use in acute cases. A well-known firm had devised compressible, collapsible tubes, such as painters use, with a long nozzle, and he has found that these tubes, being made of definite size, could be filled with ointments according to the prescription desired, and applied with great certainty and exactness. He used them exclusively. Dr. Earle also gave an "Exhibition of Electric Light for Rectal Work," which was very much on the same order of the electric light for throat work, a combination of the bulb and tongue-depressor. The whole instrument, together with the storage-battery, costs $10, and is portable and easily handled. One charge will last ten hours, so that the physicians using it for examination through the day need not have it charged very often, and those living at a distance from the city could have the cells sent to them as they were exhausted.

Dr. HUGH H. YOUNG read a paper on

A BACTERIOLOGIC STUDY OF CYSTITIS AND URINARY INFECTIONS; A PRELIMINARY REPORT.

He said this work had been begun about two years ago at the Johns Hopkins Hospital, and was extremely interesting though very hard to carry out. The object was to see, in cases of cystitis, what organisms could be found in the bladder, and his method of making examination was by suprapubic puncture of the bladder, to get the cultures. This was done with every antiseptic caution. The bladder is always easy to be reached above the pubes even when nearly empty, by compressing the abdominal walls. He spoke of the bladder walls in posterior urethritis. It is strange that the bladder is not affected by specific urethritis, but this is rarely the case. It is only when there is a wound of the bladder walls that infection takes place. In eighteen cases of acute cystitis which he had had, the staphylococcus pyogenes albus was obtained in eight cases, and in several it was after the use of instruments. In one case, a young man, 18 years old, had specific urethritis and was treated in the proper way at the hospital, and apparently cured. He was sent home to continue his treatment and, through some faulty technique, returned with cystitis. On examining the contents of the bladder, as above stated, he found the same organism as in the other case. This continued for two weeks but the man recovered. In another case, a German, 50 years old, who was rather fond of beer, one night drank an unusually large quantity and the next day showed symptoms of cystitis with some hematuria. Here the staphylococcus pyogenes albus was again found. The man had never had urethritis and no instrument had been used on him. In five of these cases there was nothing found. Melchor held that the bacillus coli communis was the most common cause of inflammation in the bladder, but this is not the cause of acute cystitis. Some organisms seem to produce a mild attack and some a severe attack of cystitis, and in long continued cases the colon bacillus seems to drive all the others away. These conditions have not been explained. He had also found cultures of gonococcus in gonorrheal rheumatism, and Dr. Thayer in one case had even found organisms in the blood.

Dr. WM. B. CANFIELD said that the work which Dr. Young had described was most elaborate and he thought that the physicians ought to be very grateful to him for bringing it out so clearly. In the case of the German above mentioned, he thought it rather strange that the organisms should be found simply from the beer and from no external cause. He also thought that five sterile cases in so few was a very large proportion.

Dr. YOUNG replied that these organisms may find their way to the body through the blood, and these are paralleled in other internal cases. He was also surprised that five cases were sterile, but he had done his work with great care and was satisfied that he was correct.

Dr. HIRAM WOODS then read a paper entitled "A Case of Congenital Purulent Ophthalmia with Sloughed Cornea." This case was brought to him by another physician and the sloughed cornea was evidently the result of ophthalmia of the new-born. He had followed, as he always did, Credé's method, and in all cases this method should be employed.

THIRD DAY—EVENING SESSION.

Dr. WILLIAM T. COUNCILMAN, Shattuck Professor of Path-

ologic Anatomy at Harvard University Medical School, delivered the Annual Address on

EPIDEMIC CEREBRO SPINAL MENINGITIS.

He said it was only within recent years that we have been able to distinguish, in epidemic cerebro-spinal meningitis, a definite disease produced by a definite etiologic factor. An organism which may be distinguished by certain characteristics of its own has been found in the inflammatory exudation in certain cases of meningitis. This organism may be grown in suitable cultures, and the pure culture, when inoculated into susceptible animals, produces the disease, and this disease follows a regular recognized course. There was a great deal of confusion at first by mistaking this disease and its organism for other diseases and other organisms. What is needed now is a series of sufficient number of cases in which the meninges have been examined during life so that the different types of the diseases may be more sharply defined. The first description of what is now known as this disease was made by Vieusseaux in 1805. An epidemic of cerebro-spinal meningitis occurred in Medfield, Mass., in 1806, later other epidemics occurred in various parts of this country. This disease affects principally the young. It may be carried by infected clothing and in various ways. It is commonly called brain fever. There is little in the literature on immunity from this disease. The organism which we now recognize as the specific cause of this disease was first described by Weichselbaum in 1887, and was confirmed later by Jäger, in 1895. It is a micrococcus of about the same size as the ordinary pathogenic micrococci and appears in diplococcus form as two hemispheres separated by an unstained interval. It stains by any of the ordinary stains for bacteria and is decolorized by the Gram method. He then described at some length its manner of growth on various media and its effect on animals.

In the postmortem examinations made it is usually found, and its situation varies according to the stage of the disease. Besides the meninges of the brain and the coverings of the spinal cord, the organisms was found in no other places in the body. The spleen was often enlarged. There were described three forms of the disease, the acute, the chronic and the intermittent. Pneumonia is often a complication but it must not be supposed as it was once thought that the pneumococcus is a cause of meningitis. The surest way of making a certain diagnosis is by lumbar puncture and this should always be carried out when possible. The method is easy and experience has shown that it is devoid of danger.

FOURTH DAY—MORNING SESSION.

Dr. FRANK D. SANGER read a paper "On the Importance of the Early Recognition of Enlargements of the Pharyngeal Tonsil," in which he dwelt especially on this trouble in young children and spoke of the symptoms and bad effects if allowed to continue.

Dr. EDWARD M. SCHAEFRER spoke of the utter ignorance of the laity on such things and how they should be instructed on the dangers of allowing a child to go unoperated on when it gave every evidence of a large growth of adenoids filling the posterior pharynx.

Dr. WILLIS OSLER said that the profession was also to blame and he thought that the profession at large needed education on this subject just as much as the laity. He sees every year eight or ten cases of serious trouble resulting from negligence on the part of the physician who should have insisted on the parents having the child submit to an operation at the hands of a specialist. It is a very easy matter. A child that breathes with open mouth and snores in its sleep should be at once put into the hands of a specialist and it is not every specialist in nose and throat who can treat such cases properly.

Dr. H. O. REIK then made some remarks on "A Further Study of the Use of Formaldehyde in Sterilizing Instruments," and exhibited the small oven devised by himself and Dr. Watson and showed the ease and thoroughness with which instruments could be sterilized. He had taken knives and wiped them across virulent structures and put them in this oven, where the gas thoroughly sterilized them in ten minutes. A five grain tablet burned in the lamp will sterilize the knife in ten minutes and when the instruments are wrapped in a towel they are sterilized by a thirty-grain tablet in twenty minutes.

Dr. WILLIAM R. STOKES of the City Health Department, and Dr. Arthur Wegefarth, then demonstrated "Free Leucocytic Granules in the Blood and their Reaction to Various Stains."

The following officers were then elected for the ensuing year, which will mark the completion of the one hundredth continuous year of the existence of the Faculty: President, Samuel C. Chew; vice-presidents, Drs. Mary Sherwood and J. McP. Scott; secretaries, Drs. J. Williams Lord, Robert T. Wilson, W. Guy Townsend and H. O. Reik; treasurer, T. A. Ashby.

Ninth International Congress of Hygiene and Demography.

This Congress convened at Madrid, April 10, with all the European governments well represented, except Russia and Denmark, many delegates from Mexico and South America and some from the United States. The 900 Spaniards raised the total number inscribed to 1600, which included six Turks, three Chinese and ten Japanese. The fear of war troubles kept so many away, however, that only 700 were present at the opening, according to the *Münch. Med. Woch.* The government and individuals were "considerate and hospitable and made the Congress a brilliant social event, remarkable under the circumstances," while the presence of many noted hygienists insured its scientific value, although the ten sections and six languages rendered it somewhat difficult to follow all the proceedings. The most important communication was from Nocard of Paris, who announced that he has succeeded in isolating

THE GERM OF CATTLE PLEURO-PNEUMONIA.

It is scarcely visible, even magnified 1600 diameters, and its exact shape, etc., are still undetermined, but biologic and pathologic phenomena prove unquestionably the presence of the culture-making specific germ in the barely visible turbidness of the liquid culture-media. Spronck of Utrecht, stated that he has reduced the percentage of post-sero-therapeutic accidents from 15 to 4 per cent. of the cases treated, by heating the serum in a water-bath to 50 degrees C. for half an hour, which seems to destroy toxic matters in the serum without affecting its antitoxic properties. He also stated that he had obtained a toxin twenty times more powerful than usual by using yeast in his culture medium. One kilogram of ordinary yeast is boiled with five liters of water and then set aside, and after the addition of an alkali, sugar and peptone, is sterilized and filtered. The toxin attains its maximum power on the sixth day. This yeast solution is harmless in hypodermic injections. Martin has shown that the serum varies with the peptone, and Llorente urged the Congress to establish an international standard for serum, and a committee was appointed to investigate the subject. Krause thinks the serum varies with the horse used and that certain persons are more susceptible to post-sero-therapeutic accidents than others. Calmette reviewed the

PRESENT STATUS OF IMMUNIZING AGAINST SNAKE VENOM,

observing that the anti-venom serum is by far the most powerfully active of any serum yet produced. The venom of the poisonous reptiles of the different countries in the world is all extremely similar, and an animal immunized against a very active venom, such as that of the naja or bothrops, is thereby rendered immune to all other venoms less active than the one with which he has been vaccinated. The serum of horses vaccinated against large doses of very active venoms possesses a preventive and curative power to such an extent that its injection confers upon other animals an absolute insensibility to any kind of venom. The amount of curative serum required to save a venom-intoxicated animal is inversely proportionate to its weight and directly proportionate to the quantity of the venom. The antitoxic action of bile, cholesterin, antitetanus and antirabic sera recently reported, is nothing specific, but merely the transient effect of cellular stimulation. He concluded by describing some recent tests, which showed that the anti-venom serum still manifests its curative power even if the nervous system be intoxicated with another strong toxin, such as strychnin. Ermenghen called attention to the fact that even the spores of the bac. botulinus are killed by exposure to a temperature of 85 degrees C., and that the bacillus will not grow in a medium containing more than 8 per cent. sodium chlorid.

DIPHTHERIA IN MAN AND IN FOWLS

was compared by Terré, who considered them closely analogous, as is shown by the fact, among others, that anti-diphtheria serum cures both. Isolation is evidently the prophylactic measure required. Loeffler objected to these conclusions, as he considers that diphtheria in pigeons differs from diphtheria in fowls, and that the specific toxin of a certain diphtheria bacillus requires an equally specific antitoxin. Professor Chantemesse reported the favorable results on man of his

TYPHOID ANTITOXIC SERUM,

and convincing experimental results. Typhoid antitoxin must neutralize both the microbe and the toxin it secretes, and he has succeeded in accomplishing this since his discovery of the

soluble typhoid toxin which is rapidly produced in certain media and vanishes later with equal rapidity under the influence of the oxygen of the air. The *Presse Méd.* of April 13 contains his communication *in extenso*. He notes the peculiar fact that acidifying a fatal dose of toxin with tartaric acid will deprive it of almost all its toxic power, but that this returns, although not quite to its full extent, if the former alkaline reaction is restored by adding the necessary amount of sodium. Loeffler announced that he had succeeded in rendering animals immune to "aphthous fever," foot and mouth disease, by inoculating them with the active substances contained in the blood of other animals inoculated with the serous fluid from the blisters of animals affected with the disease. This preventive effect is enough to protect a herd against an epidemic of the disease, although the vaccination is only temporary and the actual germ of the affection has not yet been discovered, probably on account of its infinitesimal proportions. Borrel's communication in regard to

CEREBRAL TETANUS AND ITS TREATMENT

is a plausible explanation of the failures in tetanus antitoxin treatment to date. By injecting the tetanus toxin directly into the cortex he produced a special kind of tetanus, quite different from the usual manifestations and varying with the cellular group injected. He proclaims also the important fact that if the antitoxin is injected directly into the cerebral substance a very small amount will save the animal more than fourteen hours after the tetanus has appeared, at a period when even enormous doses injected subcutaneously are without effect. In regard to immunity, this cerebral tetanus demonstrates that it is never the nerve-cell that is rendered immune; in all cases immunity, either natural or acquired, depends upon the arrest of the toxins before they have invaded the sensory cells. Immunity, therefore, is not a question of the nerve-cells becoming accustomed or insensible to the toxin. Behring observed in reference to tuberculosis toxin that he has found birds much better subjects for this kind of research than mammals. He also mentioned the complete cures obtained in cattle with tuberculin treatment, and the satisfactory results if 90 per cent. are cured, even if a few are undoubtedly killed by the treatment. But of course this argument can not be applied to man, as if serum treatment jeopardizes even a single human life it is impracticable. He also urged the importance of an international standard and control over toxins of this kind.

Next congress convenes at Paris in 1900.

Chicago Medical Society.

A regular meeting was held May 3, with President Henrotin in the Chair.

Dr. RICHARD DEWEY read a paper entitled

REMARKS ON THE RELATION BETWEEN MENTAL DISORDERS AND SURGICAL OPERATIONS,

in which he reported forty-four cases of insanity occurring after surgical operations.

In the discussion, Dr. FRANK BILLINGS mentioned the case of a man that came under his observation in 1881. The patient ran a pitchfork into his foot, shortly after which tetanus developed. The sciatic nerve was first stretched and following it the anterior crural, without any good results. Following these operations insanity developed.

Dr. DANIEL R. BROWER said that when iodoform was first used he saw several cases of insanity following iodoform dressings. He believes that the mental derangement was produced by the toxic effect of the iodoform. In introducing new dressings into surgical work their possible effects on the nervous system should be carefully considered by surgeons.

Dr. CHRISTIAN FENGER mentioned a case of insanity following operation for the removal of carcinoma of the lower lip. He thought the disfigurement following the operation was what caused the patient to become mentally depressed.

Dr. A. H. FERGUSON had seen mental disturbances following operations as well as insanity. He spoke of the relationship between septic intoxication and mental disturbances following operative interference. The first case of mania he saw in consultation followed a perineorrhaphy in which there was a great deal of puerperal sepsis.

Dr. A. J. OCHSNER mentioned a case of acute septic peritonitis which he saw eight years ago following a ruptured pyosalpinx or appendiceal abscess. Before the operation the patient was sound mentally, but when she came out from under the influence of the anesthetic she was insane, had to be transferred to an insane asylum, but at the end of two years her mental condition was greatly improved. He cited other cases.

Dr. HAROLD N. MOYER said surgeons had neglected the nervous conditions of their patients, being quite content if operations were successful.

Dr. ARCHIBALD CHURCH had come professionally in contact with two thousand or more cases of insanity, and yet he was unable to recall a single case in which the operation *per se* could be attributed as the inciting cause of the insanity.

Dr. M. L. HARRIS summed up the causes of insanity following operations, as drug intoxications; septic intoxications; auto-intoxications, from disturbances of nutrition and defective elimination following operative interference; withdrawal of accustomed stimulants, such as alcohol and morphin, and the anesthetic.

Dr. ARTHUR D. BEVAN had seen a number of cases of traumatic insanity following injuries received in railroad accidents.

PRACTICAL NOTES.

Drainage Tubes are used by Delagenière, made of nickel perforated throughout, with a wide rim to prevent its escaping into the wound. A cotton wick inside absorbs the fluid like the wick of a lamp, and ensures perfect drainage.—*Sem. Méd.*, April 6.

Sodium Saccharinate is claimed to be one of the best intestinal antiseptics known to date, without secondary effects. One gram once or twice a day will notably diminish the number of bacteria in the intestines, especially the bac. coli. Take in wafers or in Apenta water.

Cure of Paralysis of the Palate by Electricity.—Six applications of static electricity to the region of the sternomastoid and trapezium stimulated the spinal nerve to such an extent that it cured the existing paralysis of the left half of the soft palate; patient a tabetic.—*Sem. Méd.*, April 20.

Substitution of Trephining for Lumbar Puncture.—Moty relieved a threatening case of acute meningitis by trephining the right parietal region and opening the dura mater, inserting a horsehair loop and suturing the skin. The pain was relieved at once and all the symptoms gradually improved.—*Sem. Méd.* April 13.

Eosinophilous Cells in Tuberculous Sputa are evidence that the organism is rallying its forces to repel the invasion of the infection and that it is still resistant. As the infection progresses and bacilli commence to appear, the eosinophilous cells are no longer found.—*Münch. Med. Woch.*, April 12.

Substitution of Salt Solution for Antiseptics in the Treatment of Venereal Buboes.—Waelsch announces that buboes injected simply with salt solution heal more rapidly and completely than if mercurial or other antiseptics are injected, which retard the healing process by the irritation they produce.—*Sem. Méd.*, April 6.

A Handy Diabetograph has been devised by Coulhon, which is merely a graduated tube tapering to a point at one end, provided with a faucet. The tube is filled to 0 with urine, which is then cautiously dropped into the boiling Fehling solution, by quarter drops, and the figure at the which the urine then stops indicates the amount of glucose to the liter.—*Bull. de l'Acad. de Méd.*, March 29.

Catgut and Silk Rendered Perfectly Antiseptic by Dipping in Formalin Gelatin.—The gelatin dissolves in the tissues and the formalin thus liberated acts as a powerful antiseptic. Catgut thus treated is less rapidly absorbed. Tests with animals and over a hundred patients confirm the thoroughness of the antisepsis thus secured.—Thomalla: *Münch. Med. Woch.*, April 19.

Temperature of the Eye.—Galezowski's thermometer for the eye fits closely over the ball with the graduated tube bent at right angles. He thinks that the information thus derived in regard to the temperature of the eye will be found useful in certain internal diseases of the eyes, such as chorioiditis, chorioideal hemorrhage, glaucoma, etc.—*Wien. klin. Rundschau*, April 3.

The Improved Local Anesthesia suggested by Oberst (*vide* JOURNAL, page 736) has been applied to operations on the penis with perfect success. Arendt mentions that his patient kept on smoking his cigar while a para-urethral fistula was being thermo-cauterized. He has also operated on phimosis, without assistance after five minutes' local anesthesia.—*Cbl. f. Chir.*, April 16.

Prognathism Cured with Removal of Condyles.—Jaboulay describes a distressing case of progressive prognathism in which mastication and articulation had become impossible, entirely cured by the removal of one condyle, the esthetic results perfect with the exception that the jaw twists slightly to one side, the patient not wishing to allow the removal of the other condyle which would have completed the intervention.—*Presse Méd.*, April 9.

Treatment of Epilepsy by Resection of the Superior Cervical Ganglia of the Sympathetic.—Chipault calls attention to the benignity of these operations, of which there are now seventy-one on record without a single operative incident or accident. The success obtained is very encouraging, although old, inveterate cases are less liable to be favorably affected. The *Bulletin de l'Acad. de Méd.* contains his two latest observations, both successes, one a child of 2½, the other a woman of 33 years.

Orthopedics of the Brain is the term applied by Berillon to the application of hypnotism and suggestion in the treatment of morbid impulses and habits and defective psychic development. He states that in his experiences with several thousand children he has found that eight out of every ten children between 8 and 15 years of age are susceptible to hypnotic influence, adding that susceptibility increases with mental capacity. Taptas also reports nasal troubles caused by vasomotor disturbances in the nasal muscles, cured by suggestion.—*Münch. Med. Woch.*, April 19.

The Success of Injections of Phenic Acid in Tetanus is confirmed again from Rome, where Professor Baccelli's treatment has been applied in thirty cases with one death. The *Gazzetta degli Osp. e delle Clin.* of March 13 compares the statistics on record, omitting all cases of tetanus in the newly born, and finds that with the Baccelli method the mortality is 1 to 30, with Tizzoni's serum 8 to 40, with Behring's serum No. 1, 4 to 11, and with Behring's serum No. 2 it is 2 to 9. The phenic acid is injected in a 2 to 3 per cent. solution, in doses of three-quarters of a centigram, as much as 35 centigrams being injected during the twenty-four hours, in some cases without inconvenience.

The Connection between Otitis Media and Articular Rheumatism is emphasized in a recent communication by E. Bloch, to the *Münch. Med. Woch.*, who says that instead of consulting the barometer and weather-vanes, we must set to work, after administering the usual sodium salicylate or other remedies, to locate the local infective process from which proceeds the intoxication producing the disease. It may be found in the tonsils, in a boil, eczema, lacerations in the cervix, etc., but in fourteen out of fifteen cases he has traced it to otitis media. Extermination of the foci, healing all solutions of continuity, this is the only rational prophylaxis against recurrence, and a strict examination is the physician's duty now in the new light of the infective character of the affection.

Therapeutics of Children's Paralysis.—Transplantation of the tendons in a case of spastic cerebral paraplegia. A. Eulenburg reports a success beyond all expectations in a case of Little's disease in which he performed the operation suggested by Nicoladoni sixteen years ago, and only recently taken up and applied to paralytic deformities of the foot by Vulpius and others. The Achilles tendon was cut and part inserted in a slit in the tendons of the peroneus longus and brevis. Each foot was operated separately; patient a girl of 4 years. He calls it a grand "physiologic operation, as it restores function and nutrition to rigid parts, by centripetal stimulation causing an intercentral liberating process in that region of the cerebral cortex which controls the antagonistic-tonic innervation."—*Deu. Med. Woch.*, April 7.

Lead Nitrate for Ingrowing Nail.—A strip of cotton should be worked in between the nail and the flesh, left large enough to cover the entire nail. A piece of cotton is then twisted into a long roll and placed on the other side of the nail groove over the sound skin. The space between is filled with lead nitrate heaped up, and the larger piece of cotton folded over it, with more cotton outside held in place with a moist bandage. This dressing is renewed every day and in two or three the exuberance will be found reduced until the edge of the nail can be seen and cotton inserted between it and the flesh beneath, when the nitrate can be discontinued.—*Sem. Méd.*, March 30.

For Intravenous Injections of Mercury the cyanid is preferred: 1 c.c. of 1 gram cyanid to 100 grams distilled water, usually introduced at the bend of the elbow after a rubber tube has been tied around the member above, the ends held with a clamp. The needle inserted in the vein is inclined toward the root of the member and pushed in another centimeter. It is then unscrewed from the syringe to note, by the flow of blood, whether it is really in the vein. The syringe is then replaced, the rubber tube removed and the injection proceeds. The patient feels nothing but the first prick. Druault states that neither thrombosis nor embolism have ever been observed and that the intravenous method is no more dangerous than the subcutaneous for the same solutions.—*Presse Méd.*, April 9.

Altitude Cure for Anemia.—Professor R. Lepine concludes a comprehensive study of this subject with the conclusions that mountain air like sea air promotes the formation of hemoglobin by improving the nutrition, but besides this, by some still inexplicable mechanism, it in itself determines a rapid formation of red corpuscles. This hyperglobulia is not permanent in healthy persons, as the number of corpuscles returns to normal in a few weeks after they return to the lowlands. Other things being equal, it seems to be more lasting in anemics than in healthy persons, but even if it is temporary, the stimulation of the hematopoietic organs can not fail to benefit the patient. It is a crisis which may interrupt or at least retard the course of the chronic disease.—*Sem. Méd.*, March 10.

Necessity of Early Antitoxin Treatment of Diphtheria.—P. Hilbert reports the results of much research and experimentation at Königsberg in regard to the dangers of mixed and secondary infections in diphtheria, in the *Deu. Med. Woch.* of April 14. He finds that the streptococcus and the diphtheria bacillus enhance each other's virulence, that cultures flourish particularly well associated and that diphtheria antitoxin has no effect after septicemia has developed. The streptococcus has been found by Reiche in the internal organs of 45.2 per cent. of the diphtheria necropsies and by Dahmer in the blood and spleen in 47 per cent. Hence the necessity of commencing antitoxin treatment at the first indications of diphtheria infection, before the streptococcus has had time to get in its work and increase the virulence of the diphtheria bacillus and be reciprocally affected. The antitoxin changes the diphtheritic lesions into an ordinary diphtheroid angina; the opportunity for the streptococcus to develop increased virulence is lost, and the danger of complications notably reduced. "Theory and practice harmonize so perfectly in antitoxin treatment, that the time is approaching when a death from diphtheria will be among the rarities." We note in the same issue some statistics showing that the average number of deaths from diphtheria per one hundred thousand inhabitants in the German cities from 1886 to 1895 was 106, while since 1895, the average is 44. Also that there were only 274 deaths from diphtheria at Paris in 1897, while in 1886 there were 1524, in 1890, 1639, and in 1893, 1262.

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SATURDAY, MAY 21, 1898.

THE INFLUENCE OF LOCALITY ON DISEASE.

It has only been within a few years that the medical profession in general has come to appreciate the value of the study of natural surroundings in relation to their bearing upon disease. Not long ago hygiene in its true scope was an unheard of study even in the best of medical schools and it has only been very recently that an examination of the medical student upon this part of medical science has been insisted upon by the best faculties in the United States. In England, on the contrary, much more attention has been given to this subject and the government, in a paternal fashion, exercises a certain amount of oversight over hygienic matters which in this country are, unfortunately, too often ignored.

The graduate in medicine of many years ago looks upon hygiene as simply a study of the purity of the air, the purity of water, the principles of isolation and the other general prophylactic measures for the prevention of disease. All of these are without doubt of the greatest importance to the practicing physician, yet there are deeper and wider themes for study in connection with medical geography than many of us appreciate. It is odd that so little attention has been given to medical geography, although the difficulties and cost of competent investigation into the relation of geographic situation to disease have, of course, been effective obstructive agents. It is true that certain localities possessing peculiar health-giving properties have been studied, but these spots on the earth's surface are like oases in the desert of general ignorance concerning the relation of geography to disease. In this connection an article recently published by MASON in the *British Medical Journal* of March 12, 1898, is of very considerable interest. He finds, in regard to malignant disease, that cases suffering from such lesions tend to group themselves chiefly about low-lying land in the neighborhood of sluggish streams and where the soil is poorly drained, and he even goes so far as to state that the nearer the stream, the greater the frequency of malignant disease, and he cites specific instances in different parts of England where the percentage mortality from malignant disease is very high as compared to that in the neighboring district where the land is better drained. Or to speak more directly, the percentage of mortality in the upland districts is only one-seventh of that in one of the low-lying districts, and he also quotes NOEL as stating that in "cancer regions" one of two conditions prevail, either they are closely populated, or, if the houses be spread about at some distance from one another, they are connected by a sluggish stream.

Dr. MASON goes so far as to suggest that the malignant disease is due to a microparasite, which he thinks is a protozoon, which gains its entrance into the body in much the same manner as does malaria from exhalations from water or from sodden soil.

These studies of MASON are of particular interest in view of those of Mr. ARTHUR HAVILAND, published in a book entitled, "The Geographical Distribution of Diseases in Great Britain," in which he shows that geographic position governs the mortality of diseases to an extraordinary degree. Thus, in relation to malignant disease he finds that the highest mortality in England is in those areas which have a clay formation and the lowest in those areas characterized by the presence of the older rocks, that the "cancer fields" of England and Wales are chiefly to be found in the shallow, low-lying valleys traversed by full and occasionally overflowing rivers, and that the limestone areas have the very lowest mortality.

In regard to heart disease, HAVILAND finds that those parts of England and Wales which are most exposed to the force of the sea winds are characterized by almost continuous groups of low mortality, and wherever the axis of the valley is identical with that of the prevailing winds a low mortality is observed. On the other hand, when the axes of the valleys are at such an angle to the prevailing wind as to prevent an overflow of air, the mortality from heart disease is very high and the interesting additional information is given that in Devon, England, such areas are incapable of a wheat yield above twenty-one bushels per acre, whereas the average for England and Wales is about twenty-nine bushels.

In view of the fact that many cases of heart disease arise from rheumatic attacks and that cold and damp are supposed to be particularly favorable to the development of rheumatism, these statements in regard to the geographic influences which bear upon

heart diseases are of considerable interest, but it is particularly in regard to the prevalence of cancer that such studies possess novelty to many medical readers. It is to be regretted that with the generous appropriations which have been made by the United States Government for various studies in connection with the public health this matter of the influence of geologic formation upon the development of disease has not as yet been more carefully studied.

THE "AURA" OF EPILEPSY.

The "aura" of epilepsy is so notable a symptom that it is a little remarkable that it has not been more often the special subject of medical writing. It sometimes practically replaces the attack; or perhaps one ought rather to say, the aborted attack does not progress farther than the aura. It is a transitory condition of sensation or sometimes of feeling or intellection or even of motor disturbance that often varies only slightly from the more continued pre-epileptic states in point of duration, and this alone ought to suffice to suggest a greater importance than is commonly attributed to it, on other grounds than merely as an indication of the cortical initial excitation or the peripheral irritation that gives rise to the attack. In some cases it may be itself so annoying and prominent that, when as occasionally happens, the motor symptoms are aborted it is considered as a serious ailment by the patient or his physicians. A homeopathic doctor some years ago wrote a little book on "A New Form of Nervous Disease" which from his description was apparently nothing else than one of these aborted epilepsies in which the epigastric aura ascended to the head and the possible momentary disturbance of consciousness was described as an explosion within the cranium. Such phenomena are common enough to have come under the notice of almost any observant person who has had an extensive experience with epileptics and are by themselves hardly considered as noteworthy enough to call for special mention. It is strongly suggested by some of the phenomena of migraine that it may be properly considered as an aborted epilepsy, the sensory aura blending with the post-epileptic discomfort to form the migrainous attack. Indeed we can not restrict the aura to simply fleeting or momentary conditions, and the attack of migraine itself, however long it may last, may be altogether analogous and parallel to the other types of sensory aura. In a recent paper on this subject Dr. L. PIERCE CLARK of the Sonyea epileptic settlement, makes no special limitations of time for the continuance of the phenomena of the aura; in his view it would seem that any mental or emotional state as well as any set of sensory or motor symptoms, lasting it may be, for hours, and followed finally by an epileptic attack, is to be considered as an aura.

There is, however, a certain practical convenience in distinguishing between these continued pre-epileptic conditions and the aura in a more limited sense, and as it is commonly recognized. Otherwise we are liable to confuse with it all the conditions that are usually known as pre- and post-epileptic, the *petit mal* attacks and the epileptic equivalent, and there are good clinical reasons for not desiring this to be done. It is better to confine the term "aura" to the sensory and occasionally the motor symptoms immediately preceding the attack either by a few seconds or at most a few moments, and thus restricted the phenomenon is such as to still be worthy of careful study and investigation. The current medical opinion that by it we can at least assume the cortical region in which the morbid process takes its rise, though this be, as CLARK suggests, only the detonating fulminate that starts the explosion, is enough in itself to indicate this importance. In cases of traumatic epilepsy the aura suggests itself, therefore, as to some extent an aid to physiologic localization, and in cases not traumatic we may possibly have in this symptom some indication for rational surgical or other treatment. Before it can be thus utilized, however, more knowledge must be obtained as to the symptoms, and we need more careful and prolonged observations covering a large series of cases. Such studies are not always practicable or easily made, for several reasons. The symptom, except when it involves the motor organs, is a subjective one, as Dr. CLARK points out, and all the fallacies of human testimony have to be reckoned with in estimating the patients' statements. Only close and long-continued observation and repeated examinations, taking into account every possible factor of error and self-deception, and the mental capacity of the subject, his reliability and suggestibility have all to be considered. Again it is only by a large series of such observations that we will ever be in a position to make deductions and there are comparatively few who are likely to be in a position to observe epileptics so extensively as to warrant generalizations. The co-operation of many observers is desirable and these ought to have such special training as will make their observed facts reliable and really valuable for the purpose. Still another possible difficulty is the mixed and sometimes variable nature of the aura itself, which may involve several cortical centers, and is by no means always constant in the same individual. It does not always follow that with traumatisms of the brain causing epilepsy, the aura corresponds with the part directly injured, or with the motor symptoms of the attack itself. All these facts complicate the study, but they do not by any means impair its value, and it is highly desirable that it should be thoroughly followed out. Difficulties in such investigations are suggestive rather than discouraging and often are the direct cause of widening the scope and of leading to new discoveries.

Besides the aura there is another well known fact

that is related in a manner to it, and that deserves observation and study. In a very large proportion of epileptics, either with or without an aura, the convulsion begins in definite motor regions, in an arm or leg or in the muscles of the face. A close observation of the facts of the attack itself in as large a number of patients as is possible is also a desideratum if we are to learn all that is within our possibilities of this disease or syndrome of cerebral disorder. Hitherto for the reasons given, this has not been done to any great extent, and it is to such establishments as those that have been recently opened in several States of our Union for the care of epileptics, that we must look for the elucidation of this and other important questions that have been before the medical profession, or will yet arise, in regard to the interesting phenomena of epilepsy.

MEDICAL ORGANIZATION FOR WAR SERVICE.

Recruiting is in progress to fill up the ranks of the regular army to its war footing of over 60,000 men, and as we write, about one-half of the number of volunteers called out by the President have been mustered into service. Brigadier-generals and major-generals with officers for staff duties have been been appointed and the regiments will soon be aggregated into brigades, divisions and army corps. Military officers are well satisfied with the appointments, for as a rule they have been made from the list of trained soldiers; and army medical officers also have reason to be satisfied, as five appointments to the position of chief surgeon with the rank of lieutenant-colonel have been given to majors of the medical corps. The work immediately before these chief surgeons is the organization for field service of the medical and hospital force of the army corps to which they may be assigned. Instructions for the guidance of these officers have no doubt been considered by Surgeon-General STERNBERG, but so far nothing of the kind has been made public. So long as a regiment constitutes a separate command the regulations applying to posts or military stations suffice for its medical administration; but a broader working scheme is required when regiments become the units of a larger force.

Additions to the personnel of medical and hospital force are appearing daily in the camps. For the troops of the regular army the law has provided a medical staff and a hospital corps, the strength of the one fixed by law, of the other discretionary with the Secretary of War, except as regards the number of hospital stewards, which is restricted to one hundred. A bill has, however, been introduced into Congress to remove this restriction. For the troops of the volunteer force the act approved April 22, 1898, "to provide for temporarily increasing the military establishment in time of war," authorizes the muster into service of a chief surgeon for each corps, division and brigade, and a surgeon and two assistants for each regiment, but no mention is made of a hospital corps. Nevertheless, in the act approved April 26, 1898, the main object of which was to increase the regular army to meet conditions of war, there is a proviso authorizing one hospital steward for each battalion, *i. e.*, three to each regiment of volunteer troops. Existing law is thus seen to provide medical officers and hospital corps men for the regular army, and medical officers and hospital stewards for the volunteer army; but no specific provision has been made for the muster in of private soldiers for the hospital corps of the latter. In some of the States hospital corps men of the National Guard have volunteered and been mustered in as privates of the line. These men look forward to transfer hereafter into the hospital service; but at present the only legally defined way into this service is by enlistment into the hospital corps of the regular army. It may be taken for granted, however, that in one way or another a sufficiency of men will be enlisted for hospital duty by the time the regiments have been organized into divisions and army corps.[1]

In the organization of the medical staff and hospital force for war service full account must be taken of the experience gained by army medical officers in the many sanguinary engagements of the civil war. That experience demonstrated the incompetency of a regimental medical service and the excellence of a medical organization based on the division as a unit. The regimental medical officers and the regimental hospital are efficient in the summer encampments and ordinary State police duties of the National Guard, just as the post-surgeon and its assistants in the post hospital suffice for the army garrison in times of peace. But in war the medical strength of an army must not be tied up in regimental bonds. It should be a well organized and well disciplined force which, like the reserve of the fighting men, may be brought in its full strength to that part of the line where its services are most required.

The medical force of an army corps should be organized by divisions so that any regiment in the division may have the benefit in times of stress of the medical services and supplies provided for all the regiments. The division consists of three brigades of three regiments each, aggregating 10,000 men. The hospital should consist of thirty to forty hospital tents, with light cots or litters, mattresses and blankets for at least two hundred patients; medical and surgical supplies and kitchen outfits for the campaign; subsistence stores for men and forage for horses and mules for so many days, and the personal baggage of officers and men all packed, when in column of march, in twelve to fifteen six-mule army wagons—and the packing of these wagons should be such that there should be no need to unpack the whole unless the whole medical strength of the division is to be called into action.

[1] Since the above was written arrangements have been made for the transfer (voluntary) of enlisted men of the volunteer army to the hospital corps.

The ambulance company should consist of two hundred privates, with the regular proportion of stewards and acting stewards as non-commissioned officers aggregated in three sections each under a lieutenant, and the whole commanded by a captain. This company should have a train of forty to fifty ambulance wagons. The best officers of the division should be assigned to duty with the hospital, one as surgeon in charge, one as executive officer and recorder, one as subsistance officer, the captain of the ambulance company, acting as quartermaster, and one as attending surgeon for each brigade section of the hospital; but these sections should have no claim to be regarded as brigade hospitals, they being merely wards of the division hospital, although so organized as to be susceptible of being detached at any time with a section of the ambulance company for independent service. Hospital stewards and acting stewards are assigned to special duties under these officers, with privates for pioneer work, cooking, nursing, etc. As thus organized the division hospital carries the sick during the day's march and provides for them in camp, medical officers remaining on duty with their regiments having merely to meet emergencies and care for slight cases which require neither transportation nor hospital treatment. This organization must be prepared for battle-field conditions by standing orders assigning three surgeons as chief operators with three assistants to each of them. Medical officers not thus specially assigned for battle service give first aid at the advanced stations. An organization of this kind can not be broken in for service in a day or two, even supposing that there is no delay in providing all the articles of the equipment. Time is required for every officer and man to become familiar with his special duties under the new conditions. There is in fact much to be done in the way of organization and drill before the medical service of an army such as is now being formed can be ready for efficient service; but as we have earnest men and experienced officers we may rest assured that the Army Medical Department will not be found wanting.

MEDICO-MILITARY STATISTICS.

In September, 1894, an International Commission of Military Medical Officers met at Budapest to consider the best method of tabulating the statistics to be published for comparative purposes by each of the countries participating in the convention. Besides Dr. JOHN S. BILLINGS, who represented the United States, there were present representatives of Britain, France, Germany, Austria-Hungary, Belgium, Denmark and Italy. A series of ten tables was agreed upon, copies of which were submitted to the various military medical departments for adoption, if approved. On suggestions made by the Surgeon-General of the United States Army the ten tables were reduced to eight. The Commission at a subsequent meeting recommended that the statistical data for the calendar year 1895 be the first to be officially published on the approved forms. The United States acted promptly on the recommendation of the Commission, for as all the data needful for the construction of international tables were already on file in the office of the Surgeon-General of the Army the statistics of 1894 were published in the "Annual Report" for the year ended June 30, 1895. Regularly since then the international tables have formed part of Surgeon-General STERNBERG's "Annual Reports"; but not until the present time, so far as we are aware, has any of the European medico-military departments issued its statistics on the forms approved by the Commission. In a supplement to the Army Medical Department Report for the year 1896, just published, the data relating to the health of the British army are submitted in a series of seven tables. These correspond with the forms published by the United States authorities; but there are some important omissions, as the prevalence of sickness at the larger garrisons and the prevalence of important diseases by branches of the military service and by months. A comparison of the sickness among our troops and those of Britain, as shown by these tables, is given in another part of this issue of the JOURNAL.

CLUMSY FORGERY.

We were astonished some time since to see in the journal called *Printers' Ink*, in the number of April 27, the name of this JOURNAL printed in a list of publications that had accepted an advertisement of a concoction which we had positively refused to advertise. The following letter is self-explanatory:

"APRIL 30, 1898.

"Editor *Printers' Ink*, No. 10 Spruce St., New York, N. Y.

"*Dear Sir:*—In your issue of April 27, in an article referring to medical journals, you mention the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and also publish a letter purporting to have been sent by us, to the effect that ——— advertisement would be accepted by our pages. There is an error in regard to this matter, as we did not answer the letter of inquiry from the Rowell Agency, owing to the fact that on a previous date we had declined the advertisement of ——— and had given our reasons therefor. Probably you have the name of this publication confounded with that of another, as the rates quoted do not conform with ours at all. If the letter you have on hand is signed as having come from this office, we would like very much to see the original copy. Please publish a correction of this in your nexe issue, and oblige."

Receiving no reply to this communication, we waited until May 7, when the following letter was sent registered:

"Editor *Printers' Ink*, New York, N. Y.

"*Dear Sir:*—A careful perusal of your issue of May 4 fails to indicate any notice being made of my communication sent you on April 30, relative to the injustice done the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in your issue of April 27, regarding this JOURNAL offering to accept an advertisement of ———. Neither have we received a reply to our letter. While we fully believe that you had no intention of doing us an injury in printing a letter as having come from this office, when in

reality we had nothing to do with it, yet we are unable to understand why you remain silent in this manner. We herewith enclose a stamped envelope and respectfully request an early reply."

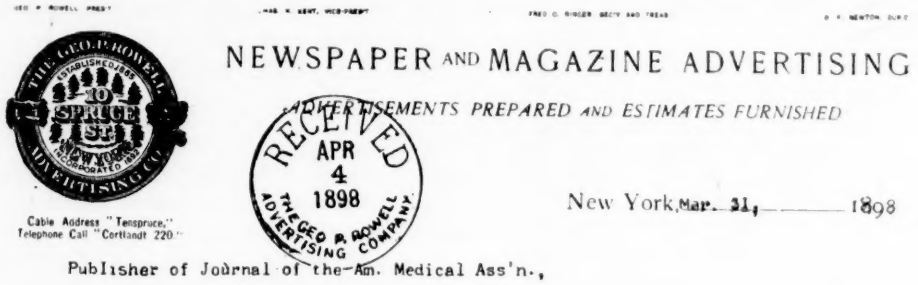
On May 11 we received the following reply and an enclosure from The Geo. P. Rowell Advertising Co., of which we publish a fac-simile.

"NEW YORK, May 9, 1898.

"*Editor of the* JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION: We have your registered letter of May 7, addressed to *Printers' Ink*. The reply to our letter of inquiry, concerning the advertising of ———, is enclosed herewith.

"Very respectfully,

[Enclosure.] "THE GEO. P. ROWELL ADVERTISING CO."



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P. S: What is the size of a page? How many columns to a page? 5 1/2 X9-1/2in.

An answer on this sheet would serve every purpose.

The following letter was sent:

"Your favor of the 9th inst. enclosing a letter from which the editor of *Printers' Ink* published an extract as having been sent from this office, is at hand. In reply we will state that the letter you forwarded to us never came to this office, furthermore the rate, discount and size of paper do not correspond with that of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. The letter states 'See rate card enclosed,' and we now have to ask that you kindly forward that enclosure so that we may be able to trace the sender. In the meantime, in justice to us, you should have *Printers' Ink* publish a correction of this matter. Herewith we enclose a stamped envelope for reply."

It will be noticed that this blank is not signed by anybody. Furthermore the figures inserted in handwriting are not in the handwriting of any person of this office, and those inserted by typewriter are by a green copying ribbon, whereas blue is the color used by the machines of this office. Besides it is noticed that this Company have not returned any rate card. The rate card of the ASSOCIATION is published with the JOURNAL's name and address in plain print and it would have been perfectly easy if they had such a card to have sent it. We are forced to conclude that the whole matter is a "clumsy forgery," and we beg our contemporaries who have been so radical in criticising the JOURNAL to make the necessary correction.

Since writing the above, we have received the following letter from The Geo. P. Rowell Advertising Co.:

"NEW YORK, May 14, 1898.

"*Editor of the* JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:—Your letter of April 11, is at hand, in which you ask

us to have published in *Printers' Ink* a correction in a certain matter, about which there has been correspondence between us. We think, if you will be good enough to prepare and send us the matter you think should appear in *Printers' Ink*, we shall have no difficulty about the insertion. If there has been any harm done we regret it exceedingly, and will do all we can to set the matter right. We are, your obedient servants,

"THE GEO. P. ROWELL ADVERTISING CO."

KENTUCKY STATE MEDICAL SOCIETY.

The forty-third annual session of this society was held in Maysville, May 11, 12 and 13, and on account of the location of the town the attendance was not up to the usual standard. The work done however was interesting and instructive.

The President in his annual address made reference to the waning interest and attendance which had been manifest in the State meetings for several years, and suggested the cause as being due to the large number of county, local and district societies, which are attended in preference to the larger body. As a remedy he suggested a modification of the constitution, making a membership in the State society dependent on membership in the county society, the latter naming delegates, in proportion to their membership, to the State society and to the AMERICAN MEDICAL ASSOCIATION. Delegates to the latter from the county societies are recommended to the State society and their selection confirmed by that body. A member of the Nominating Committee for the ensuing year is also named by each county society. This is a radical change in the present arrangement for election of officers, it now being that each congressional district elects its representative, the President appointing a Chairman.

As an instance of the success of this plan, the President referred to the Indiana State Society which now has a membership of 1500.

A committee consisting of Dr. H. E. TULEY, J. N. MCCORMACK, and JOHN. A. LEWIS was appointed to consider the matter, and returned a modification of the constitution as suggested.

Dr. H. E. TULEY of Louisville offered resolutions condemning the CAFFREY Bill on public health, and endorsing the bill prepared by the AMERICAN MEDICAL ASSOCIATION, and urging the senators and representatives in Congress to work against the CAFFREY Bill and for the AMERICAN MEDICAL ASSOCIATION Bill. He also offered the following:

It has been brought to the attention of the Kentucky State Medical Society, at Maysville, Ky., in meeting assembled this 11th day of May, 1898, that there is a bill now pending before the United States Congress relative to the suppression of vivisection in all its forms, be it

Resolved, That we, the Kentucky State Medical Society, fully realizing and deeply appreciating the great achievements in the domain of medicine and surgery which may be directly attributable to a practice of legitimate vivisection in the past, and feeling that its suppression as called for by the said pending bill would be a most serious blow to research in the future, do most heartily condemn the passing of such a bill; and be it further

Resolved, That a copy of these resolutions be spread upon the records of the society and that a copy be sent to each representative of the United States Congress from this State, and also to the senators from Kentucky, and an autograph letter from the Secretary of this Society urging them to use their influence to defeat the passing of this bill.

The President for the ensuing year is Dr. DAVID BARROW of Lexington, Louisville being selected as the next place of meeting.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

The fifty-fourth annual meeting of the American Medico-Psychological Association which occurred last week at St. Louis, was a success in all respects. The character of the papers read was high and the critics of American psychiatry would have found little in the proceedings to justify their strictures. The annual address by a distinguished neurologist, Dr. ESKRIDGE of Denver, on "The Mutual Relations of the Alienist and Neurologist in the Study of Psychiatry," offered a picture of the future institution for the insane, which if not immediately realizable, will certainly afford a sufficiently elevated ideal for the aim of the present workers in the field. The presidential address also of Dr. BUCKE on the need of more attention to gynecologic surgery in the insane was a thoroughly progressive one, though all may not fully share his opinions. The hospital idea of the asylum was well to the fore in the papers and the discussions, some of which were of very decided interest.

The local arrangements were almost perfect and greatly contributed to the success of the meeting. While there were not any very extensive social diversions beyond a drive around the city, visiting the various points of interest, this was felt by all to be no disadvantage, as the scientific interest in the meetings kept up to the very end. The session was a creditable one to its members as a scientific body, and to the committee of arrangements, who left nothing undone that could contribute to its success.

THE JOURNAL SPECIAL TRAIN TO DENVER.

The JOURNAL SPECIAL TRAIN will leave the Union Depot, Adams and Canal Streets, Chicago, Saturday, June 4, at 11 P.M., via the Chicago, Burlington & Quincy Railroad, arriving in Denver Monday morning 7 A.M., in time for the meeting of the American Academy of Medicine, the American Medical Editors' Association and other medical organizations holding sessions on Monday.

Pay no attention to statements other than those announced in the JOURNAL. The reason for arranging for the stop-over on the return trip was owing to the fact that the Exposition at Omaha will be in much better condition then than now. Passengers from the East taking the JOURNAL SPECIAL at Chicago may have their stop-over arranged without extra cost.

The "Special" will run through. Tickets will be

good for thirty days. The rate will be one fare and $2 for the round trip, the most favorable rate yet granted the ASSOCIATION.

CORRESPONDENCE.

Beware of Temptations!

INDIANAPOLIS, May 13, 1898.

To the Editor:—From the enclosed letter you can readily see what temptations await us at the Denver meeting:

Editorial Rooms of *The Denver Republican.*
WILLIS S. THOMPSON, City Editor.
DENVER, COLO., May 10, 1898.

Dear Sir:—Will you please send us, by the earliest mail convenient, a good photograph of yourself? We wish to secure it as far in advance of the June Convention as possible, and we will guarantee its return in good condition.

Yours very truly,
WILLIS S. THOMPSON, City Editor.

P. S. Kindly write full name and address on back of photo.

If our fellow members yield to this pernicious way of advertising themselves in the newspapers our ASSOCIATION must eventually become a society of advertising idiots. We have no excuse whatever for this. Quacks have no other way to keep themselves before the public.

Please sound a friendly note of warning through our JOURNAL, and prevent, if possible, our weaker brethren from lending themselves to the practice of vain, miserable fools.

J. L. THOMPSON.

The Stamp Tax and Proprietary Preparations.

BOROUGH OF BROOKLYN, NEW YORK CITY, May 2, 1898.

To the Editor:— . . . Despite the constantly increasing cost of barley, wheat, oats, cod-liver oil, quinin and other commodities, which enter largely into the composition of the maltine preparations, we have decided to bear the tax of four cents per bottle which is to be imposed upon our output, ourselves.

Although this will entail a heavy burden upon us we deem it the duty of every patriotic citizen to contribute cheerfully and without quibbling, such a share of the enormous cost of prosecuting the war as our government may find it necessary to exact.

Yours faithfully,
THE MALTINE COMPANY.

ASSOCIATION NEWS.

The Denver Meeting.

Medical Librarians.—There will be an important meeting of medical librarians and those interested in medical libraries, at the Brown Palace Hotel, Denver, on Monday, June 6, a 4 P.M. HENRY SEWALL, Chairman of Local Committee on Medical Libraries.

Executive or Business Committee.—The first meeting of the Executive Committee of the AMERICAN MEDICAL ASSOCIATION will be held in the club room of the Brown Palace Hotel, Denver, Colo., Monday afternoon, June 6, at 5 o'clock. Subsequent meetings of the committee will be held at the same time and place each afternoon during the meeting of the ASSOCIATION, unless otherwise ordered by the committee. It is essential for the successful conduct of the ASSOCIATION that all the members attend the meetings of the committee. L. DUNCAN BULKLEY, M.D., Secretary.

Railroad Rates.—The Western Passenger Association, Chicago, formally announces the following rates for the Denver Meeting of THE AMERICAN MEDICAL ASSOCIATION, June 7–10, 1898:

Rate.—One regular first-class normal tariff (not temporarily) fare, plus $2.00, for the round trip from Association territory to Denver, Colorado Springs and Pueblo, Colo., and return.

Dates of Sale.—Tickets to be sold from Eastern Committee territory, June 2, 4 and 5, and from Trans-Missouri territory, June 5 and 6, 1898.

Limits.—On going trip tickets to be good for continuous passage commencing on date of sale up to first Colorado common point en route; stop-over to be allowed on going trip at intermediate Colorado common points, but to arrive at destination not later than June 7, 1898. The return to be continuous passage beginning on date of execution by joint agent, with the provision that the return passage shall not commence earlier than June 12, nor later than July 6, 1898. Tickets may be executed for return at destination or either of the other Colorado common points en route. Purchaser to commence his continuous return passage return journey from point of execution.

Diverse Routes.—For this occasion tickets may read west of the Missouri River, going one route and returning another via any regularly authorized route via which regular short line one way rates are properly applicable.

Announcement.—The following arrangements have been made for the Denver meeting of the AMERICAN MEDICAL ASSOCIATION:

Section Dinners will be given June 7, at 7:30 P.M., and social entertainments will be given on other evenings during the week.

Ladies' headquarters will be at Unity Church, where they will be received by the wives of physicians of Denver. Arrangements have been effected for their entertainment during their visit, and committees will escort the visiting ladies to the various points of interest in Denver.

On Friday June 10, a complimentary excursion to Idaho Springs and around the loop will be given by the Colorado State Medical Society. At Idaho Springs, the ASSOCIATION will be entertained by the citizens.

On Saturday, a complimentary trip will be made to Colorado Springs under the auspices of the Committee of Arrangements. At Colorado Springs the ASSOCIATION will be entertained by the local physicians and citizens. Visits will be made to all points of interest in the vicinity. Arrangements will be made for trips to Pike's Peak and the celebrated mining camp of Cripple Creek at low rates of fare.

At a date to be determined, special trains for Glenwood Springs will leave Colorado Springs via The Denver and Rio Grande Railroad and the Colorado Midland Railroad. Tickets $5.00, good going via one railroad and returning the other, and for ten days from date of issue.

The trip to Glenwood is one of the most attractive in Colorado, giving excursionists a view of some of the finest scenery in the Rocky Mountains, including Pike's Peak, Ute Pass, the Valley of the Arkansas, Hagerman Pass, Canons of the Roaring Fork and Frying Pan, Canons of the Grand and Eagle Rivers, Tennessee Pass and the Royal Gorge of the Arkansas and passing through the cities of Pueblo, Leadville, Canon City and Florence.

Special Hotel rates will be given by the Hotel Colorado and other Hotels of Glenwood Springs. The springs, baths and swimming pool will be free to the ASSOCIATION.

Special cars will be hauled on the Colorado Springs train and the Glenwood Springs Special, only when handed to the railroads with their full capacity.

Section Dinners.—The following Section Dinners will be given at the Denver meeting of the AMERICAN MEDICAL ASSOCIATION on Tuesday, June 7, at 7:30 P.M.:

Practice of Medicine, Metropole Hotel.
Surgery and Anatomy; Obstetrics and Diseases of Women; Ophthalmology, Brown Palace Hotel.
Laryngology, L'Imperiale Hotel.
Materia Medica, Pharmacy and Therapeutics; Cutaneous Medicine and Surgery, Windsor Hotel.

Diseases of Children, The Albany Hotel.
Neurology and Medical Jurisprudençe, University Club.
Stomatology, St. James Hotel.

In order that satisfactory arrangements may be made for dinners, it is essential that all members who expect to be present notify the Chairman of Committee on Section Dinners as soon as possible and not later than June 4.

E. C. RIVERS, Chairman,
16th and Stout Sts. Denver Colo.

Hotels.—The following is a list of the principal hotels of Denver with the rates agreed upon for the meeting:

The Brown Palace Hotel, 17th Street and Broadway. Take 17th Street (red) car to Hotel. European plan, $1.50 per day and upward.

The Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer Street. American plan, $2.00 per day; room with bath, $2.50 per day.

The Albany, 17th and Stout Streets. Take 17th Street (red) car to Hotel. American plan, $2.00 to $3.50 per day.

The Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Hotel. European plan, $1.00 per day and upward.

All reservations at the Albany and Markham must be for the full term of the Meeting, and be paid for whether occupied or not unless canceled ten days in advance. They reserve the right to place persons occupying a room alone in a single room.

The New St. James Hotel, Curtis near 16th Street. Take 17th Street (blue) car to Hotel. American plan, $2.00 to $3.50 per day.

L'Imperiale, 14th Street and Court Place. Take Colfax Avenue car to Court Place. American plan, $2.00 to $3.00 per day.

Metropole Hotel, Broadway near 17th Street. Take 17th Street (red) car to Broadway. European plan, $1.00 to $2.00 per day. $1.00 rooms, $1.50 if occupied by two persons. No reservations made.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1.00 to $3.00 per day. An extra charge for two persons in one room.

The American House, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2.00 per day.

The above hotels make no extra charge for reservations or for persons occupying a room alone except as stated.

The Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan, $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2.00 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street (red) car to hotel. European plan, $1.00 to $1.50 per day.

The Aldine, 1013 Seventeenth Avenue. Take 17th Street (red) car to hotel. American plan, $1.25 per day.

The Richelieu, 1727 Tremont Street. Take 17th Street (red) car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2.00 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to hotel. European plan, $1.00 per day and upward.

The Bonaventure, 18th and Glenarm Streets. Take 17th Street (red) car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street (red) car to hotel. European plan, .75 to $1.50 per day.

These hotels make small extra charges for two persons occupying same room. No charge for reservation.

Applications for rooms should be made to the hotels direct. For special information apply to ROBERT LEVY, M.D., Chairman Sub-Committee on Hotels, California Building, Denver, Colo.

J. W. GRAHAM, M.D., Chairman.
W. A. JAYNE, M.D., Secretary.

Section on State Medicine.—Additional papers:

Cold and Respiratory Diseases, by Charles H. Shepard, Brooklyn, N. Y.

The Milk Supply of Cities, is the Public Entitled to Receive Better Service, by Henry O. Marcy, Boston, Mass.

The Water-supply of Cities, by C. F. Ulrich, Wheeling, W. Va.

Artificial Respiration in Relation to State Medicine, by E. D. McDaniel, Mobile, Ala.

The Action of Alcohol on the Body Cells, by Elisha Chenery, Boston, Mass.

Some Observations Concerning the Care of the Insane, by W. S. Parker, Asylum Station, Mass.

Rights of the Public in Dealing with the Department Classes, by Alfred W. Wilmarth, Chippewa Falls, Wis.

Suggestions as to the Limitation and Treatment of Juvenile Criminals, by D. R. Brower, Chicago, Ill.

The Influence of Certain Alcoholic Beverages upon the Secernment and Nutritive Value of Human Milk, by Heinrich Stern, New York City.

Smallpox in Alabama, by W. H. Sanders, Mobile, Ala.

The Turkish Bath in Children's Diseases, by Chas. H. Shepard, Brooklyn, N. Y.

Cremation of Garbage and Refuse; A Five Years' Test of its Cost, by Thos. F. Harrington, Lowell, Mass.

The Present Status of Antistreptococci Therapy as Related to Mixed Throat Lesions and Scarlatina, by Rosa Engleman, Chicago, Ill.

How to Limit the Overproduction of Defectives and Criminals, by J. H. McCassey, Dayton, Ohio.

The Advantage of a State Law Requiring Burial Permits, by L. Adelsberger, Waterloo, Ill.

Section on Laryngology and Otology.—Additional papers:

Perichondritis of the Larynx, by Geo. L. Richards, Fall River, Mass.

Surgical Interference in Occlusion of the Naso-pharynx, with Report of a Case of Congenital Occlusion, by D. B. Kyle, Philadelphia, Pa.

Rheumatic Sore Throat, by Burt D. La Force, Ottumwa, Iowa.

Edema of the Larynx Resulting from Administration of Potassium Iodid and Removal of Ossicles for the Radical Cure of Otitis Media Suppurativa, by Edward L. Bernstein, Baltimore, Md.

The Influence of Nasal Occlusion over Cerebration, by D. A. Kuyk, Richmond, Va.

A Report of Five Cases of Falsetto Voice in the Male, by G. Hudson Makuen, Philadelphia, Pa.

Deformities of the Nasal Septum; a Classification with a View to Treatment, by W. E. Casselberry, Chicago, Ill.

The Use of Formaldehyde in Tubercular Laryngitis, by T. J. Gallaher, Denver, Colo.

Effects of the Climate of Colorado upon the Mucous Membrane of the Nose, by G. Melville Black, Denver, Colo.

Prognosis of Laryngeal Tuberculosis, by Robert Levy, Denver, Colo.

Clinical Memoranda, a Group of Unusual Cases, by Samuel D. Risley, Philadelphia, Pa.

A Statistical Study of the Foramen of Rivinus and Scars of the Flaccid Membrane, by James M. Brown, Philadelphia, Pa.

Study of Empyema of the Accessory Cavities of the Nose, by L. J. Hammond, Philadelphia, Pa.

The Position and Significance of Drumhead Perforations, by Barton H. Potts and B. Alex. Randall, Philadelphia, Pa.

Affections of the Ear, Illustrated by Steriopticon, by B. Alex. Randall, Philadelphia, Pa.

Treatment of Purulent Otitis Media, with Report of Cases, by W. W. Buletts, Pueblo, Colo.

SOCIETY NEWS.

Texas Medical Association.—At the recent Association meeting resolutions were adopted in opposition to the District of Columbia Vivisection Bill.

New Hampshire Medical Society.—The 107th anniversary of the Society will be held May 26 and 27, 1898, at Concord. Moses C. Lathrop, Dover, president; Granville P. Conn, Concord, secretary.

Indian Territory Medical Association—The semi-annual meeting of the Association will convene at Wagoner, June 1, 10 A.M., for a two days' session, E. N. Allen, South McAlester, president; LeRoy Long, Caddo, secretary.

American Gynecological Society.—The Society will hold its twenty-third annual session at Boston, Mass., May 24 to 26, Paul F. Mundé, President; J. Riddle Goff, 22 East Thirty-fifth Street, New Yoro, secretary.

West Tennessee Medical and Surgical Association.—The seventh annual meeting of the Association was held at Jackson, May 19 and 20, R. B. Maury, Memphis, president; I. A. McSwain, Paris, secretary.

Kansas State Medical Society.—As previously announced (*vide* JOURNAL, p. 804) the Kansas State Medical Society met in Topeka May 4, 5 and 6. The committee, composed of five members from each of the three State societies, regular, eclectic and homeopathic, decided to hold another union meeting on the first Wednesday in May, 1899. Each committee is empowered by the society it represents to select a representative to read a paper at the 1899 union meeting. The object of these union sessions is the furtherance of medical legislation. The election of officers for the regular Society resulted as follows: President, J. A. Lane, Leavenworth; first vice-president, Melvin Collins, Oxford; second vice-president, S. B. Fairchild; corresponding secretary, J. W. Porter, Litchfield; recording secretary, W. E. McVey, Topeka; treasurer, L. Reynolds, Horton; librarian, S. G. Stewart, Topeka; member of judicial council, M. P. Sexton, Bonner Springs; chairman medical section, G. A. Boyle, Louisburg; chairman surgery section W. C. Bower, Lebanon; chairman gynecologic section, W. H. Smithers, Moline; chairman section on ophthalmology, H. L. Alkire, Topeka.

Wyoming State Medical Association.—Pursuant to a regularly issued call, physicians from various parts of the State met in the parlor of the Union Pacific Hotel, Rawlins, Wyo., May 13 for the purpose of organizing a State medical society. The meeting was called to order and the call read by Dr. E. Stuver, when an organization was effected by electing Dr. J. C. Hammond of Hanna, temporary president and Dr. E. Stuver, temporary secretary. The meeting then proceeded to the consideration of a constitution and by-laws, which, after a free discussion, was adopted, subject to alterations and amendments at the next regular meeting, which will be held in Rock Springs Nov. 1, 1898. The following officers were then elected to serve until the next annual meeting: R. Harvey Reed, president; Jacob W. Hawk, first vice-president; J. C. Hammond, second vice-president; W. C. C. Freeman, third vice-president; E. Stuver, secretary and editor; H. M. Bennett, treasurer. Drs. R. Harvey Reed, E. Stuver and J. C. Hammond were elected delegates to the AMERICAN MEDICAL ASSOCIATION. After the appointments of the committees the society adjourned.

Alabama State Medical Association.—At the recent meeting of the Alabama State Medical Association, a proposition to have a Jerome Cochran lecture delivered by some eminent physician, at the annual meetings in memory of this physician, was adopted. The following recommendations were also adopted. That the next Legislature be asked to adopt a law requiring compulsory vaccination and that the State Health Officer be called in in doubt; that a law be adopted giving the State quarantine laws precedence over the county laws; that the State Board of Health have charge of the matter of controlling the movement of trains, etc., in the event of epidemics; that the location of the proposed monument to Jerome Cochran be changed from Selma to Montgomery. The following officers were elected: President, H. A. Moody of Bailey Springs; orator, G. C. Chapman of Mobile; senior vice-president, S. G. Gay of Selma; junior vice-president, S. H. Lowry of Huntsville; secretary, G. R. Waller of Montgomery; treasurer, H. G. Perry of Greenville. Mobile was chosen as the next place of meeting.

National Confederation of State Medical Examining and Licensing Boards.—The eighth annual meeting of this Confederation will be held in the Brown Palace Hotel at Denver, on Monday, June 6, at 10 o'clock A.M. The following program has been arranged:

Address of Welcome, by William P. Munn, Health Commissioner of Denver. Response by Vice-president William Bailey.

Report of the Committee on Minimum Standards of Requirement; N. R. Coleman, Chairman, Columbus, Ohio. Discussion and action thereon.

Report of Secretary and Treasurer.

Annual Address by the President: Uniformity the Key to Reciprocity.

The results of the Medical Law of New Jersey, E. L. B. Godfrey, Camden.

The Results of the Medical Law of Massachusetts, by E. B. Harvey, Boston.

The Results of the Medical Law of Kentucky, by Joseph M. Mathews, Louisville.

The Tennessee Method, by T. J. Happel, Trenton.

Under What Conditions is the State of Virginia Likely to Reciprocate as to Standards with Other States, by R. S. Martin, Stuart.

Some of the Practical Reasons why Latin and Greek should not be included in the Standard of Preliminary Education Required of Medical Students, by Henry Beates, Jr., Philadelphia. Discussion thereon, by J. A. Egan, Springfield, Ill.

On the Preparation of Questions, by Edward Cranch, Erie, Pa.

Papers by Charles K. Cole, Helena, Mont., and A. Walter Suiter, Herkimer, N. Y.

The object of the Confederation is to consider questions pertaining to State control in medicine and to compare methods in vogue in the several States, the collection and dissemination of information relating to medical education and to consider propositions that have for their purpose advancement of the standards in the United States. A cordial invitation is extended to all members and ex-members of State Medical Examining Boards, and to physicians, sanitarians and educators who are friendly to the objects named, to attend the meeting and participate in its proceedings.

A. WALTER SUITER, Secretary. WILLIAM WARREN POTTER, President.

Florida State Medical Association.—At a recent meeting the Florida State Medical Association endorsed the resolutions adopted at the quarantine conventions held at Mobile and Atlanta, memorializing Congress to take appropriate action for the protection of the United States against the incursion of yellow fever from foreign sources and particularly from Cuba, and adopted the following resolutions, ordering that the action be certified to the Florida senators and congressmen in Washington, urging immediate action:

"*Resolved*, That it is the sense of this convention:

"1. That Congress be requested to provide for a Department of Public Health as soon as practicable:

"2. That it is the sense of this convention that Congress should enact laws to provide for an efficient maritime quarantine, to be uniform and impartial in its application to the different commercial ports of this country, so as to give no one or more of them undue commercial advantage over the others, and to be enforced by the several State and municipal quarantine or health boards if they will undertake so to do; leaving also to the States the power to prescribe and enforce additional safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

"3. That Congress should aid the several States in establishing and maintaining uniform, reasonable, and efficient quarantine laws for affecting, but not regulating interstate commerce, leaving to each State adequate power to protect as it shall deem best the lives and health of its people.

"4. That Congress should leave exclusively to the States the regulation of their purely internal commerce and the provision of such quarantine and sanitary laws and regulations as they may deem advisable to that end.

"5. That in the framing of quarantine laws and regulations, and in their enforcement, Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible, and especially by way of an advisory council."

In connection with the same subject, Dr. Frank H. Caldwell of Sanford, offered the following resolutions, which were adopted unanimously:

"*Resolved*, That this Association extend its congratulations to their fellow-citizens of the State of Florida upon the escape of the State from an epidemic of yellow fever during the past season, when the dread disease prevailed so extensively in our neighboring States of Alabama and Louisiana.

"*Resolved*, further, That in the opinion of this Association, our freedom from the invasion of this disease was due to the active work of our State Board of Health and particularly to the untiring zeal of our efficient State Health Officer.

"*Resolved*, That in our opinion any relaxation of restrictions during the coming season will materially increase the danger of importation of the disease into the State. We, therefore, urge the State Board of Health to insist on the United States Government recognizing this danger and request the Governor of the State of Florida to uphold the State Board of Health in enforcing regulations which they may deem proper to make for our protection."

The election of officers resulted as follows: President, R. P. Izlar of Waycross; first vice-president, T. S. Anderson of Branford: second vice-president, W. L. Hughlett of Cocoa.

PUBLIC HEALTH.

An Abominable Italian Industry.—It has just been brought to the attention of the authorities in Naples that the ragmen have been in the habit of purchasing the wadding or charpie used for dressing in the hospitals, and after washing it, selling it to upholsterers for padding sofas; the railroad cars have also been using this discarded material. A vigilance service has been established to prevent such sales, and this wadding or dressing is now destroyed in the sanitary furnace at Pasconcello.—*Medical News.*

Health in Chicago.—The report of the Department of Health for April gives 2133 deaths for the month, a rate of 1.32 per 1000. The rate for the corresponding month in 1897 was 1.06. Of these 2133 deaths, 505 were persons under 1 year old and 266 between 1 and 5 years. The principal causes were: Pneumonia 359; nervous diseases 276; consumption 222; bronchitis 131; acute intestinal diseases 119; heart diseases 116; typhoid fever 94; cancer 60, and diphtheria and membranous croup 30 cases. There were 135 examinations of suspected diphtheria made, of which 60 were found to be true diphtheria, 69 false diphtheria, while 6 examinations were unsatisfactory, *i. e.*, no growth, etc.

Health in Michigan.—The report of the State Board of Health for April gives the diseases most prevalent during the month as, rheumatism, influenza, neuralgia, bronchitis, pneumonia, inflammation of the kidney, pulmonary consumption and diarrhea. Compared with the March report (*vide* JOURNAL, p. 998), measles and remittent fever increased in area of prevalence. Compared with the average for twelve years, for April, intermittent fever, consumption, scarlet fever, whooping-cough, remittent fever, erysipelas and diarrhea were less prevalent. Consumption was reported at 147 places, measles at 117, scarlet fever 50, diphtheria 43, typhoid fever 37, whooping-cough 19, and smallpox at one place.

The New York Board of Health Provides Against Emergencies.—The Health Department of New York city realizing that conditions may arise during the coming summer requiring the employment of a large number of experts who have had experience in its work, has asked that all persons who have been employed in the department during the past twenty years send their names and addresses to the Secretary at the office, Center and Elm streets. The names thus sent in will be placed on a roll, to be known as the "Reserve Sanitary Corps." It is not stated whether this corps will receive any recompense, if called upon; and it is not stated how the order of selection will be arranged. Is it possible that an evasion of civil service regulations is being foreshadowed?

Decision Favorable to a Contagious Disease Hospital.—In a suit to prevent the maintenance of a smallpox hospital on the ground that it is a nuisance to the neighboring residents of the small Yorkshire town in which it is situated, Justice Romer sitting as an equity judge, lately heard considerable interesting medical testimony in regard to the manner in which smallpox may be conveyed from the patients in such an institution. The complainant's witnesses were generally of the opinion that the disease could be transmitted through the air to some extent, outside the precincts of the hospital. One witness, however, the government health officer at Hastings, limited the likelihood of outsiders being reached by smallpox to such persons as came within 600 feet. This theory of aerial convection, as it is called, was rejected by the medical men testifying in defense of the Yorkshire hospital, who expressed great confidence that wherever all the facts of a case of smallpox could be ascertained it would appear that the malady was due either to direct or mediate contagion, that is, contact with the patient himself or with a person who had seen the patient. Justice Romer refused to adjudge the hospital to be a nuisance, but did not expressly determine whether the theory of aerial convection is or is not correct.

The Prevention of Smallpox.—Apropos of the history of smallpox in Paris since 1870, there has just appeared a comparison of the conditions which obtain in Berlin and Paris. Vaccination is not compulsory in France, and since 1870 more than 20,000 people have died in Paris from smallpox. There have been two or three noteworthy epidemics, the epidemic of 1871 and 1872 being especially severe and fatal. Berlin has had no epidemic since the one that occurred among the French prisoners in 1871. Vaccination is compulsory in Prussia, and school and military regulations are so framed that care is taken to provide for revaccination later in life, as well as the original vaccination in early childhood. Paris' lowest death-rate from smallpox for any year since 1870 was in 1895, when only seventeen deaths were reported. Of this state of affairs the health authorities were very proud, and not without reason, since the inability to require vaccination makes it extremely difficult to guard against the spread of the disease when once it has invaded a district. The next year, 1896, a few scattered cases of smallpox occurred in Berlin and two deaths were reported. The excitement over this was very great and a whole series of investigations were undertaken to discover, if possible, where the blame lay.—*Medical News.*

Health of Large Cities in 1897.—The European edition of the *New York Herald* contains the following table of mortality in a certain number of towns in all parts of the world during the year 1897. The Hague 14.8, Brighton 15.0, Cardiff 15.1, Amsterdam 15.2, Stuttgart 16.1, Charlottenburg 16.1, Portsmouth 16.2, Christiana 16.2, Bremen 16.3, Frankfort-on-the-Main 16.3, San Francisco 17.1, Stockholm 17.2, Hamburg 17.2, Berlin 17.4, Copenhagen 18.8, Brooklyn 17.8, London 18.1, Paris 18.6, Philadelphia 18.7, Lyons 18.8, Venice 19.1, Leipzig 19.6, New York 19.7, Dresden 20.4, Cologne 21.2, Vienna 21.3, Birmingham 21.5, St. Petersburg 21.8, Glasgow 21.9, Nuremburg 22.5, Halle 22.7, Manchester 23.0, Baltimore 23.0, Aix-la-Chapelle 23.1, Salford 23.8, Liverpool 24.3, Munich 24.5, Breslau 25.0, Stettin 25.3, Belfast 25.7, Trieste 25.8, Dantzig 26.2, Havre 27.5, Rouen 28.4, Moscow 28.6, Dublin 28.9, Madrid 29.8, Cracow 32.3, Bucharest 32.8. It will be seen that Berlin, Paris and London hold a high position. The mortality in Berlin is usually considerably larger, and last year was an exceptionally healthy one in the German capital. In very many of the large cities the rate of mortality in 1897 was much smaller than in previous years. The improvements in sanitary arts are beginning to bear fruit and even better results are expected by those who, under the name of sanitarians, are devoting their lives to the combat with communicable disease.

A Wall Disease Due to Micro-organisms.—Dr. Vallin, before the Ninth International Hygienic Congress, considered the subject of the presence of saltpeter in the walls of domiciles. From this condition, he claims, there results a disease of the walls due to the presence of micro-organisms. As the walls could not suffer without causing serious inconvenience to the persons whom they were destined to shelter, it was the duty of sanitary reformers to seek to cure the walls and thus save the inhabitants. The disease was caused by the penetration

into the body of the walls of the bacilli of nitrification, and consequently the houses became cold, damp and unwholesome. This condition was likely to occur in damp localities and in presence of nitrogenous organic matter. From the sanitary point of view this disease of the walls could and should be prevented or cured as we prevent or cure virulent diseases among men and animals. Consequently, Dr. Vallin proceeded to speak of the walls of a house just as if they were human beings and went systematically through the various symptoms of their diseases. Dealing first with the prophylaxis of wall diseases, he pointed out that the primary step to be taken was to thoroughly drain the ground round the walls and isolate them from the surrounding earth, if possible by a trench and by the use of cement, asphalt, or coal-tar. Thus the access of water-bearing nitrifying bacteria that are aerobic would be prevented. It was also very necessary to mix the mortar used with antiseptic solutions such as dissolved sulphate of copper, etc. Where these precautions had not been taken and the disease had broken out, then the treatment indicated was as follows: First, to scrape off and wash away all superficial traces of saltpeter, etc.; then the walls should be inoculated with active cultures of the anti-nitrifying bacilli which impoverish farm manure by decomposing the nitrates and by throwing off in the atmosphere a great part of the nitrogen which they contain; these walls should then be covered over with impermeable paint so as to retard the process of nitrification of the aerobic germs and, on the other hand, to stimulate the growth of the anaerobic and anti-nitrifying germs which remove the oxygen from the nitrates and from ammonia when they can not supply themselves with oxygen from the atmosphere.

A Pennsylvania State Hospital for Consumptives Proposed.—Dr. Benjamin Lee reports in *Public Health*, March, that progress has been made in regard to the proposed mountain sanatorium for the tuberculous. Several points along the line of the Lehigh Valley Railroad have been visited by Dr. Lee and his coadjutors and White Haven has been found to possess special advantages for such an institution. The point selected is about 1225 feet above the level of the sea, and 150 feet above the Lehigh River. Green Mountain rises gently from the Borough of White Haven until at an elevation of 100 feet above the town it forms a plateau, a few hundred feet in width, stretching westward indefinitely. It is on this plateau that it is proposed to locate the sanatorium. The prevailing winds of this locality are northwest, and the sanatorium would be protected from them by Green Mountain, which rises rather abruptly from the plateau some 400 feet, and passes westward continuously with the plateau. It thus affords admirable shelter from the wind. The sun exposure is all that could be desired. The outlook is to the south and the plateau is bathed continuously with sunshine from daylight to dark. The view is out over a wide stretch of wilderness, east, west and south. From the top of Green Mountain there is a charming prospect toward every point of the compass. The soil is porous, and rains, however slight, are speedily carried down the declivity, or so thoroughly removed by percolation as to prevent the rendering of the atmosphere humid, as it would be under other circumstances. With the exception of a clearing on the plateau, which is occupied as a farm, the mountain side is wooded. It is the natural home of the pine, though the extensive lumbering operations which brought White Haven into being, have long since brought about an almost entire disappearance of this beneficent tree, whose varied products, by some strange chemistry of nature, have ever been found to be so healing in affections of the respiratory tract. For purity of atmosphere the locality is up to a high standard, and is pronounced practically free from miasmic and malarial influences. This tract of several hundred acres can be had free of cost, if the funds for building and organizing the plant can be obtained. A donation, by the State legislature or by private contributors, of $30,000 will launch the enterprise. The legislature of 1898 has recently declined to make the appropriation this year, but the movement will not be allowed to rest there.

BOOK NOTICES.

Medical and Surgical Report of the Boston City Hospital.—Ninth Series. Edited by CHARLES F. FOLSOM, M.D., W. T. COUNCILMAN, M.D., and HERBERT L. BURRELL, M.D., Boston, published by the Trustees, 1898. Pp. 276.

The contents of this volume are the following:

1. A Clinical Study of Eight Hundred Cases of Diphtheria at the South Department of the Boston City Hospital, by John H. McCollom, M.D.

2. Heart Complications in Diphtheria, by Cleon Melville Hibbard, A.M., M.D.

3. Acute Degeneration of the Nervous System in Diphtheria, by John Jenks Thomas, A.M., M.D.

4. The General Infections and Complications of Diphtheria and Scarlet Fever, a bacteriologic Study of 157 cases, by Richard Mills Pearce, M.D.

5. Seventy-one Cases of Cerebro-spinal Meningitis, by Francis H. Williams, M.D.

6. Hydatid Cyst of the Liver, by A. L. Mason, M.D., and H. L. Burrell, M.D.

7. Surgical Abstract, by Herbert L. Burrell, M.D., and John T. Bottomley, M.D.

8. The Clinical and Pathologic Report of a Case of Fracture of the Spine in the Cervical Region, by J. W. Courtney, M.D.

9. Treatment of Prolongation Forward of the Nasal Septum into the Nostril, by John W. Farlow, M.D.

10. A Case of Vesico-Utero-Vaginal Fistula Treated by Colpocleisis, by Charles M. Green, M.D.

11. The Local Anesthetics used in the Eye, by Walter B. Lancaster, M.D.

12. Formaldehyde as a practical disinfectant and as an aid in the practice of surgery, by Charles Harrington, M.D., and Richard Mills Pearce, M.D.

13. Endocarditis from Gonorrhea, by George G. Sears, M.D.

14. Hematoporphyrinuria with the Report of a Case, by Dr. J. B. Ogden.

15. A Study of Thirty-seven Fatal Cases of Cirrhosis of the Liver, by John Lovett Morse, M.D.

16. A Case of Malignant Pustule, by Abner Post, M.D.

17. A Case of Late Congenital Syphilis, by Abner Post, M.D.

18. Two Cases of Amebic Enteritis, by Lawrence Watson Strong, M.D.

19. A Report of a Case of Appendicitis showing the Relation of the Colon Bacillus and the Streptococcus Pyogenes as Etiologic Factors, by Joseph J. Curry, M.D.

20. The New Surgical Services by Herbert L. Burrell, M.D.

21. The Pathologic Laboratory of the Boston City Hospital, by F. B. Mallory, M.D.

Report of the Health Department of the City and County of San Francisco. Paper. Pp. 463. San Francisco. 1897.

This report is for the fiscal year ending June 30, 1897, and, in addition to the many full-page tables, contains a map of the city showing localities of deaths from diphtheria, total number sixty-six, during the fiscal year. The reports are largely tabular in form. An appendix contains, a list of master plumbers, markets, laundries, bakeries; reports on samples of food collected; chemic analysis; inspectors' record of milk cases; arrests and disposition of cases, and a report on sanitary condition of dairies and number of cows.

Proceedings of the North Dakota Medical Society, for 1897. Paper, pp. 80. Grand Forks, N. D., 1898.

This volume comprises the transactions of the tenth annual meeting of the State Medical Society of North Dakota, held at Grand Forks, May 26 and 27, 1897, the by-laws, constitution, and list of members. The following papers are included: "Voluntary Commitment of the Insane;" "An Interesting Case of

Heart Disease;" "Equal Parts of Chloroform and Ether as an Anesthetic;" "Demonstration of a New Cystoscope for Examination of the Bladder;" "Treatment of Severe Forms of Corneal Ulceration;" "A Method of Treatment for Acute Appendicitis where Pus or Severe Infection is Present; with Report of Cases;" "Résumé of Thirty-six Operations for Appendicitis;" "General Remarks on Typhoid Fever;" "Hemiatrophia Facialis with a Case;" "Ventro-Fixation of the Uterus."

Twenty-first Annual Report of the Board of Health of the State of New Jersey and Report of the Bureau of Vital Statistics. 1897. Paper. Pp. 389. Trenton, N. J. 1898.

This volume contains reports covering the usual matters found in health reports; a list of members of the State Board of Health; list of coroners; "The Public Health Law of New Jersey," by W. M. Lanning; "River Polution," by E. J. Marsh; circular and laws, "The New Jersey Sanitary Association," and numerous tables of vital statistics.

NECROLOGY.

THOMAS D. DUNN, M.D., West Chester, Pa., died May 6 as a result of an operation necessitated by a recent accident. He was a graduate of Pennsylvania University, 1881, a member of the Philadelphia Pathological Society, Pennsylvania State Medical Society, and, in fact, founder of the Chester County Hospital. He was 44 years of age.

NORMAN GAY, M.D., Columbus, Ohio, died at his home May 6, aged 78 years. During the Civil War, as a surgeon on Grant's staff, he rendered service at Shiloh and Corinth and afterward in the hospitals at Nashville and Atlanta. Dr. Gay was a member of the AMERICAN MEDICAL ASSOCIATION, and one of the charter members of the Ohio State Medical Society.

C. H. EVANS, M.D., Canton, Ohio, died May 12. He was a graduate of Jefferson, 1884, a member of the AMERICAN MEDICAL ASSOCIATION, Ohio State Medical Society, American Microscopical Society and other societies, and author of a monograph on "The Microscope in Diagnosis and Prognosis."

A. L. BROWNE, M.D., Cornwall-on-Hudson, N. Y., May 3, aged 36 years.——Henry Doutteil, M.D., New Brittain, Conn., May 3, aged 50 years.——Harold Eagleson, M.D., Meadville, Pa., aged 27 years.——D. McL. Graham, M.D., Wallace, N. C., May 5.——B. M. McCauley, M.D., West Salem, Ohio, May 3, aged 50 years.——John Seay, M.D., Nashville, Tenn., May 9, aged 73 years.——Albert Toon, M.D., Louisville, Ky., May 9, aged 58 years.——Jerome J. Tuthill, M.D., Chicago, May 12, aged 34 years.

DEATHS IN THE PROFESSION ABROAD.—Prof. S. Stricker, one of the medical celebrities of Vienna, a pioneer and author in general and experimental pathology. His death followed a month after the celebration of his twenty-fifth professional jubilee, as also occurred with Prof. E. Schwimmer, the dermatologist of Buda-Pesth, whose death is announced in his 62d year.——P. L. Utinguassu, professor of physiology and anatomy, Rio de Janeiro.——Lazaro Ortega, M.D., Mexico.——Prof. G. Dragendorf, Rostock, author of numerous works on pharmacy, legal chemistry and toxicology.——D. A. Appia, M.D., Geneva, aged 80 years, one of the promoters of the Geneva Conference.——Jules Worms, M.D., Paris, aged 68 years, noted for his contributions to epidemiology and medical statistics.

MISCELLANY.

Election of Professor.—Dr. G. P. Head has been elected Professor of Laryngology and Rhinology at the Chicago Post-Graduate Medical School.

Honesty in Advertisements was attempted by a bill before the New York State legislature which failed of becoming a law. Although not so announced, the measure was intended as a blow against patent medicines, which as usual were abandoned to their fate. Trade requirements were too powerful.

Practice in New Hampshire.—The third examination for licenses to practice medicine in the State of New Hampshire will be held at the State House, Concord, on Tuesday and Wednesday, June 21–22, 1898, beginning at 8 o'clock A.M. All unlicensed physicians who were not in practice in this State on and before March 16, 1897, must pass the examinations in order to receive a license to legally practice their profession. Application blanks should be procured at once, as these papers must be filled out and in the hands of the Regent by June 15. All information regarding the coming examinations will be cheerfully given by the Department of Public Instruction, State Library, Concord. FRED GOWING, Regent.

Importance of Sugar as a Food.—Chauveau recently demonstrated before the Paris Académie des Sciences that the general assumption in regard to the amount of calories produced by sugar is erroneous. Instead of the theoretic assertion that three grams of sugar are equivalent to the nine calories produced by the consumption of one gram of fat, only 0.756 grams of sugar are required to produce this same amount of calories. He urged the repeal of duties which tend to restrict the use of sugar, contending that the people should be encouraged to use it more freely.

Effect of Section of the Spinal Cord on the Bactericidal Power of the Blood.—A series of experiments on dogs, at Catania, demonstrate that cutting the spinal cord destroys the bactericidal power of the serum, which then favors the development of colonies of the anthrax and coli bacilli instead of decimating them as in the normal condition. It was also found that the lesion materially reduced the alkalinity of the blood and the amount of albuminoids contained in it. The animals also lost their normal resistance to these infections and succumbed rapidly to inoculations. It is still a query whether these phenomena are due to the trophic disturbances or the hypothermia which follow the injury to the spinal cord.—*Gazzetta degli Osp. e delle Clin.*, April 17.

Lymphadenoma and Leukemia.—Hallopeau concludes from a rare case he has been observing, that primary leukemia may occasion eruptions simulating mycosis, accompanied by intense pruritus and multiple adenopathy without appreciable alterations of the integument. The subcutaneous tissue may become indurated, thickened and hypertrophied, although the surface remains smooth and the natural contours are retained in spite of the enormous amplification, in his case symmetric, and on the face, producing a most remarkable appearance.—*Ann. de Derm. et de Syph.*, March.

The Tolerance of the Tissues for Wires is strikingly exemplified in a case described by Lucas-Championnière, in which the triceps and tendons had been ruptured and were so contracted that immediate union was impossible. A double silver wire was passed through the muscle above the capitellum and another through the capitellum itself, thus fastening the solid bone to the solid part of the muscle. The arm was placed in a splint and when the dressing was changed the fourth day, the arm was mobilized. The patient was entirely cured in a month and radiographs taken seven months later showed the complete regeneration of the muscle.—*Bull. de l'Acad. de Méd.*, March 29.

Restoration of the Urethra in Hypospadia.—Nové-Josserand reports the success of a new operation. He supplied a new skin-lined urethra by taking on Ollier autoplastic flap from the thigh and rolling it around a piece of a 21 bougie only a trifle longer than the penis, skin side in, tied to the bougie at each end, the edges caught together with a couple of stitches, the whole somewhat resembling an umbrella in its cover. A tun-

nel was first made through the tissues of the penis, commencing at its juncture with the scrotum, and the skin flap was then introduced into this tunnel, the end emerging at the point of a normal urethral orifice. The skin flap soon grew in; the bougie support was removed the tenth day; soft catheters were cautiously inserted the fifteenth day; results perfect; permanent to date, six months.—*Rev. de Chir.*, April 10.

Ants and the Plague.—A Bombay correspondent of *The Times of India*, describes an observation made by him regarding a nest of ordinary red ants, which infests the storerooms in India. The house in which the ants had their nest was infected with plague virus as shown by the number of rats and bandicoots which were daily found dead. One day it was noticed that the ants were moving and taking all their belongings to a new home about nineteen feet from the old nest. Further observation revealed that many hundreds of the insects were dead and dying, that the dead had been carried away by their companions about a foot distant from the new home until a little reddish heap was formed, and that much of the stores of rice had been cast away as if unfit for food. Two days later, the mortality still continuing, a further move was made, the dead ants and the discarded rice being left behind. This performance was repeated several times until an accident destroyed the nest and prevented further observations.

The Frequency and Importance of Vascular Thrombosis in General Pathogenesis is emphasized by Venneman, who states that thromboses are found in the finer blood and lymph vessels wherever there has been an infection. They are not necessarily accompanied by sclerosis nor acute inflammation, nor by especially sluggish circulation. The endothelium alone shows signs of exaggerated vital, pathologic, activity; thinner walls, swollen and divided nuclei. The thrombosis is therefore due to the circulating fluid. It is not caused by microbes directly. He considers the giant cells of tubercles nothing but thrombosed vessels with a crown of exaggerated proliferated epithelial nuclei. Ecchymoses and sarcomas, etc., also contain many thromboses. His principal research was made with ophthalmologic specimens. He concludes with the hope that an effective medication may soon be found to oppose this thrombotic tendency.—*Sem. Méd.*, March 30.

Inference From Removal of Ovaries.—In some cases injuries are sustained which are of such a nature as will, in themselves, warrant an inference that they will permanently affect the injured person's health, or lessen his or her capacity to labor. But the United States circuit court of appeals declares, in Western Union Telegraph Company vs. Morris, that it can not say that the injuries inflicted by a surgical operation, which consisted in removing ovaries and Fallopian tubes, were of such a character that a jury was at liberty to infer therefrom that the health of the person upon whom the operation had been performed would be permanently affected, or that her capacity to labor would be thereby impaired. It is just as reasonable to suppose, in the absence of any evidence on the subject, continues the court, that she sustained no loss in either of these respects. On the other hand, the court holds that it was not reversible error to leave the jury to determine whether a telegraph company's failure to properly transmit a message summoning a physician was not the proximate cause of the plaintiff's being subsequently compelled to undergo such a surgical operation, when the physician testified that if he had reached the patient at the time he would have, but for the mistake, he believed that he could have rendered the subsequent surgical operation unnecessary.

Brain Abscess in Infants.—In the *Archives of Pediatrics* for February and March, Holt reports five cases of abscess of the brain in infants and a summary of twenty-seven collected cases in infants and very young children. He concludes that: 1. The affection is rare under five years of age. 2. Otitis and traumatism are the principal causes. 3. It most often follows neglected cases, though rare in acute otitis, and is usually secondary to disease of the petrous bone. 4. In cases in infancy without evident cause, the ears are probably the source of infection. 5. Abscess rarely develops after injury to the head without fracture of the skull, and cerebral symptoms arise within two weeks after the injury in nearly all traumatic cases. 6. Only general symptoms are present in a large proportion of the cases. 7. Unless they are constant, focal symptoms may be misleading, and even when constant may depend on meningitis or other associated lesions. The motor symptoms alone can be relied on. 8. Rapid progress, fever, and history of injury generally diagnostic from tumor, while lumbar puncture assists in slower cases with little or no fever. 9. Where there are only terminal symptoms, the diagnosis from meningitis is impossible. In the more protracted cases the distinctive points are the slower and more irregular course and generally a lower temperature. 10. Operation should not be urged unless definite localizing symptoms, the principal one hemiplegia, are present.

Asphyxia Neonatorum.—Fry (*Am. Jour. of Obstetrics*, April) considers Schultze's form of artificial respiration most efficient, but one that on account of its roughness should not be tried too long. He has had good results with hypodermatic injections of 15 minims of whisky, in some instances the asphyxia being in the more severe state. In the severer form persistent vigorous efforts toward artificial respiration act injuriously on the heart, therefore in infants born in this condition, he leaves the infant undisturbed in its placental attachment so long as any pulsation of the cord is apparent. It should be suspended by the heels for the purpose of clearing the throat and upper air-passages of mucus, and assisting by gravitation to overcome cerebral anemia. From this point the indications are: Application of external heat, best done by immersion in water at 100 degrees F., and stimulation of the respiratory center, the circulation, the muscular system and the abolished reflexes. He recommends strychnia, hypodermically, to fulfil these indications. He administers $\frac{1}{200}$ gr. and carries on accessory treatment after its administration, artificial respiration being carried on while the child is in the hot bath, Sylvester's or Derr's method being best in these circumstances.

Gleanings.—Several cases of acute rheumatic polyarthritis very favorably affected by intravenous injection of corrosive sublimate. *Cbl. f. Therap.*, 1898, 1.—Benefits of thyroid treatment for obesity extolled by Affanassieff; entire absence of trouble or disturbances. *Klin. therap. Wo.*, v, 6.—Incontinence of urine first symptom noted in a case of ovarian cyst. *Jour. de M. de P.*, April 3.—From a study of 100 cases of paralysis agitans, v. Krafft-Ebing is inclined to ascribe the etiology to psychic or mechanic trauma affecting persons undergoing biologic involution, usually during the fifties, superadded to a tendency to perivascular sclerosis. *Wien. kl. Woch.*, xi, 1.—Splenalgia noted in nine-tenths of the cases of chlorosis, also frequent osteomyalgia. Goloubov in *Sem. Méd.*, March 30.—Case of vulvitis gangrenosa (noma gen.) with diphtheria bacilli, cured with antitoxin. *Deu. Med. Wo.*, April 14.—Five cases in four generations in one family in which acute circumscribed edema developed, about 20 years of age, with intermittent vomiting, colic and other symptoms of an angioneurosis. *Wien. kl. Wo.*, 14.—Bismuth intoxication reported following injection of 35 grams of a 10 per cent. airol emulsion into an abscess in the psoas. *Cbl. f. Chir.*, April 23.—Dos Santos states in the January *Gaceta Med. de Bahia* that a case of beri-beri contracted by contagion has never been known in the Brazilian navy.—Pure pneumococcus found in arthritis in the wrist complicating pneumonia. *Sem. Méd.*, April 6.

Total Extirpation of the Bladder.—First performed on man in 1887, this operation has only been successful in three cases to date, all women, reported by Pawlik, Kossinski and Trendel-

enburg. The latter inserted the mouth of the healthy ureter in the sigmoid flexure. The *Rev. de Chir.*, April 10, contains the report of the first success obtained on a man, communicated by Tuffier and Dujarier, date October, 1887. The bladder was the seat of an alveolar epithelioma involving the entire wall. The patient, 40 years, was much emaciated from the extreme pain he had suffered, but otherwise in good condition. Ether. Trendelenburg position. After a ⊥ incision on the median line of the symphysis, extending to the inguinal region, the bladder was shelled out like the uterus in a vaginal hysterectomy without opening into the peritoneum. The orifice of the urethra was thermo-cauterized, the ureters catheterized and a button-hole made in each side of the rectum, through which the catheterized ureters were inserted, bringing the ends of the long catheters and of the threads that fastened them in the ureters out through the anus and fastening them. Iodoformed gauze was applied first then aseptic gauze and the wound closed except a large subpubic opening left; aseptic cotton dressings. The urine passed off duly by the catheter; there was no vomiting; slight fever a day or two later with pulse 130; restored to normal with intravenous injection of 1800 grams of physiologic solution, repeated 1500 grams next day. Fifth day threads removed; seventh day catheter removed and hypogastric wound drained with tube siphon. A little urine and fecal matter drained out the first day, but after this recovery proceeded uneventfully except for a slight transient edema of right leg. Urine was normal in quantity and the patient now attends to his usual occupations, wearing his reservoir and siphons without inconvenience.

Object of All Questions to Experts.—The object of all questions to experts, the supreme court of appeals of West Virginia says, in the late case of State vs. Musgrave, should be to obtain their opinion as to matters of skill or science which are in controversy, and at the same time to exclude their opinions as to the effect of the evidence in establishing controverted facts. Although an expert may have heard all the testimony in the case, he can not, continues the court, be asked to give his opinion, based merely upon his having heard such testimony in the case, whenever there is a conflict therein, unless the same is hypothetically propounded to him. An expert can not be asked to give his opinion on doubtful facts in the case on trial, which remain to be found by the jury, but a similar case may be hypothetically put to him, based upon the evidence in such case. Where the inquiry relates to a subject which does not require peculiar habits of study in order to enable a man to understand it, the opinion of skilled or scientific witnesses is not admissible.

Electric Localization of the Motor Cortical Zone.—The *Archives Clin. de Bordeaux*, vi, 11 and 12, contain a study by L. Lamacq of fifty observations of faradic stimulation of the cortex in man, by such observers as Keen, Allen, Starr, Bechterew and others, over half of them unpublished. He notes that the first movement in response to stimulation has the most significance; the reaction becomes more complex as the effect of the stimulation spreads. The localization is so precise that the slightest change in the position of the electrode affects the response. Precisely localized motor reaction denotes higher functional activity. No simple movement can be obtained in animals nor in the motor zone, for the face and lower members; the reaction is always a co-ordinated movement. He observes that it would be interesting if tests could be made on acrobats and others who have trained their feet to serve them like hands. The inexcitable points seem to be quite numerous, and are located between the excitable centers. The motor zone and the various fissures may vary slightly in different individuals, and morbid conditions may affect the reaction. The extreme utility of faradization as a means of investigation, its importance to surgery and its established harmlessness, should lead to its more general adoption. In comparing his average diagrams with Ferrier's we notice that the motor zone is confined more strictly to the anterior central convolution. The thumb and eyelid centers alone impinge constantly on the posterior central convolution.

Modern Discoveries merely an Evolution of the Medical Sciences not a Revolution.—The profession is too modest to claim before the lay public all the credit that justly belongs to it, and that should be more widely appreciated. The discoveries of late years have merely confirmed with scientific reasons the methods of procedure adopted as the results of observation and experience long years before phagocytosis and antitoxins were dreamed of. The public is apt to think that the new discoveries have revolutionized everything, while in fact the reverse is the case; they merely explain the why and wherefore of the old methods. A striking instance is shown in the mortality from puerperal fever at the great Charité at Berlin during the century. From 1801 to 1813, it averaged 2.06 per cent. of all maternity cases. The physicians in charge at that early day insisted on cleanliness, refrained from vaginal palpation and used sodium hypochlorite freely, and from 1814 to 1852 the mortality fell to 1.1 per cent. Since Lister's day it has averaged 0.29 to 0.5 per cent. The frightful increase between 1852 and 1874 was due to the increased facilities for the study of anatomy and the students going directly from the dissecting-room to the maternity wards. In those years the mortality averaged one-sixth, while one-third of all the maternity cases contracted the disease. Another instance is the discussion of the value of revulsive measures to which the *Paris Acad. de Méd.* has devoted over half a dozen recent sessions. Huchard claims that the blister has passed away with the seton and other minor dubious therapeutic measures, but the majority are cordially in favor of it still and refer to numberless instances in which, applied with judgment, it has rendered invaluable assistance. One member quoted the Italians, who have shown that the local stimulation is carried all through the lymph and blood circulation. Another mentioned a patient of his who had been relieved each time with a blister, with no injurious after-effects, and had applied it nearly three hundred times.

Studies from a British Blue Book.—Cleveland Moffett, in an analysis of a British Blue-Book statistics of deaths in England during 1890, 1891 and 1892 draws many interesting conclusions. He finds that in a comparative mortality table that the dispensers of alcohol, who head the list, die of its effects from three to ten times faster than the average of occupied males, three times faster for the brewer and ten times faster for the London hotel servant. On the other hand, the mortality from alcoholism among agricultural laborers, railway men, iron and tin and coal miners, clergymen, fishermen and others is far below the average, only one-third or one-fourth of it, while in the case of soap manufacturers, lead workers, copper miners and carpet manufacturers, no deaths whatever are recorded from alcoholism. The mortality among publicans in London, according to Moffett is nearly double that of all occupied males for the former class, inasmuch as they die nearly 10 times as fast from alcoholism, 5½ from gout, 3½ from diabetes, 3¾ from liver diseases and more than twice as fast from phthisis, rheumatic fever and suicide. Our statistician especially points out also the glossing over of the real causes of death due to alcoholism by a simple statement of a mere pathologic condition. He cites cirrhosis of the liver as a particular instance to the point and suicide as another. In the British Empire as well as in the United States we may add that the sentiment of survivors may have more to do with the pardonable falsification than scientific accuracy. Society in the main contents itself with the penalty of crimes only against itself. Further, the analyst before mentioned betrays a certain animosity toward musicians since in their sad addiction to intemperance they die

more than twice as fast as ordinary men from alcoholism, a little below that average from phthisis and very much more rapidly from liver and nervous diseases and suicide. To the heightened death rate of commercial travelers he gives a passing allusion, despite the mitigation of time spent in the open air. By a between-the-lines reading of the interesting report and a grouping of figures given we may conclude without much effort that our length of days depends upon a variety of environments which we may ourselves control. Our chief regret is that space can not be afforded for discussion of the suicide rates as governed perhaps solely by monotonous employments and the deficiency of occasional excursions outside the groove. Humanity besides a given loyalty to its stomach does not well brook a complete subserviency to the practical without a chance of some desirable prize.

Foreign Bodies in the Vagina.—The causative relation of a forgotten pessary to fetid leucorrhea is sufficiently well known. M. Monod of Bordeaux relates some curious experiences he has made on the existence of various foreign bodies giving rise to the same symptoms. In one case he removed from a young woman a sponge which she alleged to have inserted some time previously, in order to suppress an abundant discharge. The sponge was already in a state of putrefaction, and came away in pieces. A rather elderly woman came to the hospital to be treated for fetid discharge. When the finger was passed up it perceived an ovoid foreign body, which when extracted, proved to be a rosebud, in a good state of preservation. The patient pretended to know nothing about it. Last spring he had occasion to examine a woman, aged sixty, of rather limited intelligence, for a double inguinal hernia. For a year before she suffered from vaginal discharge which was so fetid that she had to isolate herself from society. Suspecting the existence of a neoplasm, he chloroformed the patient in order to make a proper examination, and to operate if necessary. When he introduced the hand into the vagina he felt a hard mass which seemed to be independent of the surrounding tissues. Passing a long forceps in he seized the body, and when he drew it he found it was a large cork. Renewing his explorations he successfully removed a thimble, a rag, a needle case, and finally a boot lace. The uterus was perfectly healthy.—*Medical Press and Circular.*

Rapid and Cheap Production of Liquified Gas.—A recent discovery has been reported in the *Medical News* that promises to have no small future practical interest to those lines of medical, surgical and pathological work requiring the application of cold. Professor Peckham of the Adelphi College of Brooklyn, has made the first public demonstration of the new discovery of Mr. T. C. Tripler of Manhattan, comprising the liquefaction of air. For many years chemists have been searching for the absolute zero. Scientists have been on this hunt with as much eagerness as explorers have been searching for the north pole. The announcement had been made that at 273 degrees C. below zero, 460 degrees F., all heat would cease. About 330 degrees in liquid oxygen had been reached. The first scientists to liquify oxygen did so at a cost of $2500 a quart. Mr. Tripler has recently discovered a method to produce it at a nominal cost with a forty-horse-power engine. He could make from two to three gallons every hour of a liquid air, which can in this form be drawn out in pipes and can be handled as easily as water. As soon as it comes out it begins to boil violently until the air about it is frozen and cooled, then it ceases to boil. Those present witnessed the novel sight of a mercury hammer. The professor took a handful of fluid mercury and placed it in a kind of mold. This was placed in a pot of liquid air and before it became hard a rod of iron was inserted in the mercury. In a moment the professor drew out what appeared to be a hammer with a silver head. The mercury had become frozen so hard that a nail could be driven with it. Several other curious experiments were made. Professor Peckham is reported as saying that this discovery bids fair to stand, among the innovations of recent years, second only in importance to that of the Röntgen ray.

Comparison of the United States and British Army Medical Statistics.—In the following comparative statements the figures relating to the Army of the United States are placed in brackets. The first table of the British compilation on the forms agreed upon by the International Statistical Conference shows the number of recruits who were medically examined, with the ratios per thousand accepted, rejected, etc. To fill the ranks of the British army during the year 1896 54,574 [14,659] candidates for enlistment were examined, and of every 1000 of these 576.52 [590.35] were accepted for service. The chief causes of rejection were: Imperfect vision 40.81 [49.87]; varicose veins and hemorrhoids 30.56 [51.65], and under height 28.79 [5.46]. The second and third tables show the strength of the European troops in the various colonies and commands, with the numbers admitted to sick report, died, invalided, constantly non effective, etc. The average strength of the army was 203,145 [23,487], and of every 1000 of these 942.7 [728.24] were admitted to the hospital for treatment; 8.14 [3.66] died; 24.99 [0] were sent home as invalids, and 16.26 [10.15] were discharged for disability. The constant non-efficiency was equal to 60.71 [33.97] per 1000 of strength and the average sick time to each soldier amounted to 22.22 [12.40] days. The highest admission rate was reported from China, 1856.5 [Dept. Platte, 871.96], the lowest from Bermuda, 470.8 [Dept. Dakota, 502.19]; the highest death rate was from India, 15.29 [Dept. Texas, 6.59]; the lowest from Canada, 3.34 [Dept. Columbia, 0.71]; the largest rate of men sent home as invalids was from China, 61.22, the smallest from Gibraltar, 6.48; the highest rate of discharge was from China, 31.29 [Dept. Dakota, 12.29], the lowest from Bermuda, 0.72 [Dept. California, 7.15]; India gave the highest rate of non-efficiency, 93.85 [Dept. Missouri, 37.23]; Bermuda the lowest, 26.86 [Dept. Columbia, 28.78]. The fourth table deals with the various arms or branches of the service and the variations of their rates by months. The infantry had the highest rates: Admissions to hospital per 1000 of strength, 1094.2; deaths, 9.45; constant sickness, 70.80; but in the United States both the artillery and cavalry had higher rates than the infantry troops. The movement of sick by months seems to have little value in a consolidation of commands which includes stations so different in their climatologic factors as the United Kingdom and India, South Africa and Canada. In the fifth and sixth table are given the numbers remaining at the close of 1895, the admission during 1896 and the total treated for certain specific diseases, with the rate per 1000 for each item. The prominent figures in the rates of constant sickness are the following: Bronchitis acuta, 1.09 [0.84]; febris intermittens, 3.52 [1.01]; gonorrhea, 9.15 [3.22]; rheumatismus articulorum, 2.10 [1.22]; syphilis, 14.22 [1.29]; typhus abdominalis, 1.67 [0.88], and morbi cutis, 2.91 [1.83]. Showing in favor of the United States troops is very marked. The seventh table gives deaths from disease, suicide, accident and injury according to age and years of service.

The Outlook in Regard to the Nerve-Cell.—"Cell Therapeutics." The morphologic changes noted in the chromatophilous elements of the nerve-cells of motor nerves in the course of infections and intoxications (*vide* JOURNAL, xxix, page 696), have been found to bear no relation to the functional activity of the nerve-cell. It is, therefore, evident that the fundamental substance of the cell, the part not affected by Nissl's stain, the "between substance," is the essential seat of functional activity. As the morphologic alterations or chromatolysis have been noted with either strychnin or tetanus, we conclude that they are caused by the chemic action of certain groups of atoms in both the toxin and the nerve-cell, between which a

chemic affinity evidently exists. Whether it is a mere coincidence or a matter of essential importance that a hyper-excitability of the nerve-cell accompanies these chemic, morphologic alterations, is still a problem. Ehrlich considers the groups of atoms stored in the cells which "bind" the toxin, identical with the antitoxins (the important results that have already proceeded from this new conception were mentioned recently in the JOURNAL, page 449). Whenever the equilibrium of affinities has been established, the cell starts on a process of restitution. If the intoxication was intense and rapid, as in tetanus, the affinity equilibrium is soon established and restitution commenced proportionately early. If it is slow, as in tuberculosis, the binding of the toxin becomes a slow process and restitution is consequently deferred. The problem now before us is to determine the morphologic expressions of the *functional* activity of the nerve-cell. Another line in which much may be accomplished, is in the study of the reaction of the nerve-cell to peripheral injuries, also the relations between the cell and functionally active groups of muscles, etc. Pharmacologic research in regard to the alterations produced by intoxications should not be confined to a single toxin, but applied to combined, complex intoxications, and to various regions of the central nervous system. It may be possible by histology to determine the affinities and antagonisms between certain chemic substances (morphin and atropin, for instance), and the limits of dangerous doses. These studies may possibly restrict to certain regions and groups of neurons the affinities for various groups of poisons, and we may even progress before long from our present standpoint of the "pathology of the nerve-cell" to cellular therapeutics.—Goldscheider and Flatau in the *Deu. Med. Woch.* of March 17.

Philadelphia.

METHOD TO PREVENT HOSPITAL ABUSE.—For some time past the physicians of this city have been urgently trying to regulate and restrict those who flagrantly abuse the charity of hospitals. Among others who have taken a prominent part in this movement are Drs. John Ashhurst, Edward Jackson, Horace G. Evans and George I. Harlan. A meeting was recently called, at the College of Physicians, to consider means to check the evil. Judge William N. Ashman of the Orphans' Court, presided; Dr. Edward Jackson stated the purpose of the meeting and gave an account of like movements in New York, Boston, and other cities. Dr. J. W. Walk and others cited instances of the evil. Judge Ashman stated that the worst effect of the abuse lay in the demoralization of the public conscience, giving use to habits of pauperization, and suggested as a remedy that patients should be made to make a statement of their means and resources. He thought a new statute would be required to make falsehoods legally punishable. At the close of the meeting the following committee was appointed to keep up the work: Drs. John Ashhurst, John B. Roberts, S. D. Risley and Professor Charles Frese.

MEDICO-CHIRURGICAL COLLEGE WINS ITS SUIT.—According to a decision recently made by Judge Gordon of Philadelphia, certain exceptions made by the Philadelphia Dental College against the Medico-Chirurgical College were over-ruled and the latter can now amend its charter and confer degrees in both dental surgery and pharmacy. The opinion cites: The original act of incorporation empowers the college among other things to establish a department of instruction in surgery (including dental surgery) and pharmacy. The supplementary act of 1867 confers upon the college all the rights, immunities and privileges as to lecturing, granting diplomas and conferring degrees in medicine, possessed by the officers and professors of the University of Pennsylvania at the present time. Further, "why would not this grant of power include degrees in dental surgery and pharmacy? Are not dental surgery and pharmacy branches of medicine? The students in dental surgery are instructed, we are informed, in anatomy, physiology, chemistry, therapeutics, materia medica, pathology, etc. Indeed the latter and better tendency is to closely ally both pharmacy and dental surgery to the parent science of medicine and to have the students in all three of these sciences matriculate with the same institution. The growth in the dignity and efficiency of dental surgery is largely due to the fact that the practitioners of this art today unlike their representatives in the past are educated carefully on allied medical studies." "The powers asked for in the amendment now before the court, we therefore think, are already included in the chartered rights of the college, but to make it plainer, the amendment (to charter) asked for is proper and should be allowed. The petition is therefore allowed and a degree will be made accordingly."

GRADUATING CLASS OF JEFFERSON.—According to a resolution recently passed by the members of the graduating class, their services were offered to the government.

DAIRY SUSPECTED OF SPREADING DIPHTHERIA.—The milk furnished by the dairy of Patrick Brady in a suburb of this city was recently suspected of spreading diphtheria to his patrons and chief medical inspector Taylor has been investigating the conditions on the dairy farm. Nuisances were found and until these are abated the farm will be under a strict quarantine. The milk is now undergoing bacteriologic investigation at the Health Bureau.

PHILADELPHIA MORTALITY STATISTICS.—For the week ending Saturday May 7 there were 445 deaths, twenty-five less than the previous week and twenty-nine more than for the same period of last year. Of the total number of deaths there were from diphtheria 22, scarlet fever 7, typhoid fever 7.

Detroit.

AT THE REGULAR MEETING of the Detroit Medical and Library Association, April 25, Dr. J. M. Mathews of Louisville, Ky., read a paper entitled "Extirpation of the Rectum," after which he held a clinic. He believes in the specialty of rectal diseases, and that the rectum is a field in which specialism can be carried out. He deplored the fact that the charlatan is preying on the afflicted and non-afflicted while the medical profession is standing by and looking on. He also wished to take issue with those who reported good results from the so-called American operation on the rectum. On extirpation of the rectum he made the points that only in a few cases should the operation be practiced: 1, those of carcinoma were complicated with hemorrhage that could not be controlled by any other means excepting extirpating the mass; 2, when the infiltration did not involve the surrounding glands; 3, where the pain could not be controlled by opium. He took exception to "Kraske's" method of resection of the rectum, upon which he said that the operation was a lengthy one, that the removal of a part of the sacrum was not necessary, and lastly, that the patient would not live long enough to make the operation an object to the operator or patient. The particular point that he wished to make in his paper was that all cases of stricture could be *forcibly* dilated, and of the great number he had so operated upon, relief had come to the patient from pain and difficult defecation. Drs. Jenks and Wyman discussed the paper. In the clinic the first patient shown was one that Dr. H. O. Walker had operated on last September, by forcible dilatation. Dr. Mathews examined this patient and commented upon it, saying that the majority of strictures of the rectum were specific, and that if upon examining a patient you find a large mass well up the rectum and it is not cancer, then in 99 per cent. of cases it is syphilitic. The second patient, the Doctor examined and forcibly dilated, after which he curetted, saving all particles removed for microscopic examination. After he had cleansed the field of operation he inserted a rubber tube around which an iodoform gauze bandage had been wound. Attached to the tube was a string which allowed the dresser to keep track of the tube. The Doctor objected to the sponge umbrella of Allingham, because when

used, internal hemorrhage took place, the first signs seen being those of fainting, etc., while with the rubber tubing it can be easily seen when starting. He said the tube was also effective as a means of keeping the parts clean. He says that every disease of the rectum could be diagnosed with the finger, except internal hemorrhoids, and that syphilis, cancer and tuberculosis, on this order, are the most frequent diseases of the rectum. He also said that all fissures in adult men can be cured by dilatation and massage, and gave a history of two cases of young people with carcinoma of the rectum, a boy of 16 and a girl of 17 years. Where there is syphilitic infiltration of fibrous tissue there is no cure for the patient. A tuberculous rectum is more resisting than a cancerous rectum. He has found fissures in children. Dilatation by the mother's fingers anointed with vaselin, once daily for a few days, brought speedy relief and cure. In closing his clinic he said he wished to place himself on record in inoperable cases of the rectum, especially wherever resection was impossible and the pain was great, as feeding his patient opium until the patient had relief, even at the risk of making an opium-eater of his patient.

Dr. E. K. Bacon read a paper on "Anatomy and Physiology of the Visceral Sympathetic and its Bearings on Pelvic, Abdominal and Mental Troubles," April 21, before the Wayne County Medical Society.

Cincinnati.

Dr. David DeBeck, at the last meeting of the medical staff, was elected to the position of ophthalmologist to St. Mary's Hospital. The service here is larger and more varied than that of any other hospital in this vicinity.

Dr. John Miller, late resident physician to the Good Samaritan Hospital, in company with Dr. Daniel Heyn, will complete his studies abroad, at the hospitals in Freiburg, Berlin and Vienna.

Hospital Internes.—The recent examination for internes to the Cincinnati Hospital, resulted in the choosing of four from the Miami and four from the Ohio Colleges; from the Ohio, Drs. John W. McKee, Samuel Iglauer, W. A. Smith, and John S. Morrison; from the Miami, Drs. Beeson, Boggess, Dean and Hines.

The commencement exercises of the Miami Medical College were held Tuesday afternoon, May 3, at Odd Fellows Hall. The valedictory address was made by Dr. Dan Millikan of Hamilton. Twelve men were graduated. A banquet was tendered to the graduating class and alumni by the faculty, the same evening, at the Burnet House. The regular paper of the evening at the Academy of Medicine was by Dr. James Rowe on "Icterus Neonatorum," and gave an epitome of the known theories of this peculiar disease. Was discussed by Drs. Ashburn, Gillespie and Mitchell. This was followed by a timely and interesting article on "Granular Conjunctivitis," by Dr. Francis Dowling. The prevalence of this disease in the armies of ancient and modern history was touched upon, and the consequences arising therefrom on account of neglect of treatment. The treatment recommended was with jequirity and especially forced expression under anesthesia. Discussion was by Dr. DeBeck. Dr. Ricketts reported a case of a woman from whose vagina he had removed a pessary which had been inserted nineteen years before for retroverted uterus. He had made an attempt to pass a catheter on the woman, which had signally failed. The foreign body was easily found on examination and as easily removed. The woman was also afflicted with peritonitis and a section made. She died within twenty-four hours. The pessary was exhibited. The attendance at the Academy was small, due to the fact that a large number of the regular attendants were at the banquet of the ex internes of the Cincinnati Hospital.

Academy of Medicine.—The paper of the evening, May 9, was read by Dr. Philip Zenner, on "Neurasthenia." Among many causes, the essayist looked upon heredity as one of the most important. Among acquired causes, the worry attending business affairs, the sequelæ of infectious diseases, especially influenza, he regarded as peculiar factors. He thought that grip was especially common as a forerunner of neurasthenia occurring among physicians. Whether the hard work and worry of physicians during an epidemic of grip, or the disease itself was the causal factor, he did not know, but thought both. He did not wish to say much as regards symptomatology, preferring to proceed at once to the more important matter of treatment. He did not pin his faith very strongly to drugs, though approving of tonics to improve general nutrition. He thought that the first desideratum was rest. In mild cases partial rest would be sufficient; lying down for an hour after each meal; getting up a little late in the morning; discontinuing work at an earlier hour than usual. The higher the grade of the disease, the more rest required, so that in the very severe cases the rest treatment of Weir Mitchell was an essential element in the cure. Suggestion is often needed to remove the abnormal ideas with which the patient is possessed. The patient should never be laughed at, as this often does great harm, lessening the patient's confidence in his physician and in the curability of his malady. Homicidal tendencies, which are often confided to the physician, may sometimes be entirely dispelled by stating that there are no such instances on record in his particular disease. Exercise should only be advised in the mild cases and never be pushed to the slightest degree of fatigue. Change of climate, especially mountain trips, change of occupation, sea voyages, etc., are often the only treatment required. Discussion. Dr. Ravogli, who called attention to the prevalence of neurasthenia among those afflicted with a posterior urethritis, either with or without a stricture of large caliber. Whether it is due to the worry of the local disease or from the poisons absorbed from the urethra itself, he was not prepared to say, but thought both agents were at work. The speaker also urged that in syphilis neurasthenia was by no means uncommon, especially among those who had been saturated with drugs. Indeed he considered the super-saturation in many cases as the causal factor. In his experience the neurasthenic condition had often disappeared with a cutting off of the anti-syphilitic remedies and the substitution of a simple tonic. Dr. H. M. Brown reported three cases of what he believed to be neurasthenia, in which all attempted suicide and two were successful. He regarded the disease as allied to insanity. Also discussed by Drs. Langdon, Kiely, Molony, and the essayist. At a recent meeting of the academy, considerable discussion occurred as to the stand taken by the local telephone company. Slot machines have been placed in all drug stores possessing phones, and with the following exceptions all using them are required to deposit a dime in the slot: The druggist is permitted to call up local drug houses, drug stores and physicians; physicians are allowed to call up their offices. Several amusing (to the non-sufferers) and exasperating experiences were related. One physician called up his office and received word that one of his clients, also a phone subscriber, wished to speak to him immediately. He was compelled to deposit his little dime. Another was called to see a serious case and desired immediate consultation with a surgeon. Not wishing to leave his patient, he gave a list of six surgeons to her husband and told him to get the first available. The man called up the six, one after another, but was unable to get any of them. Nevertheless it cost him sixty cents. A committee was appointed to confer with the powers that be to attempt to obtain more privileges for physicians and their clients.

About two weeks ago a young adult colored male was admitted to the receiving ward of the Cincinnati Hospital with smallpox. The eruption was well out. He gave a clear history, having been until a few days previous at the points in Kentucky where the disease is now prevailing. The diagnosis was confirmed by Dr. Ravogli. Examination of the blood showed clear hyaline elongated vibrating bodies, of the shape of a spirillum or bacillus, over one-half the diameter of a red corpuscle within the substance of the red corpuscles. A considerable number of the red cells contained these bodies. The case was immediately isolated and passed through a typical course to convalescence. No other cases have developed in the city.

At the annual meeting of the Ohio State Medical Society, May 4-8, at Columbus, the following Cincinnati physicians read papers: "Some Medical Aspects of Capital Punishment," Dr. F. O. Marsh; "Psychic Treatment of Disease," Dr. Philip Zenner; "Removal of the Cecum for Malignant Disease," Dr. J. C. Oliver; "Surgery of the Pneumatic Sinuses of the Skull," Dr. Robert Sattler; "Ectopic Gestation, What Cases to Operate Upon," Dr. J. Ambrose Johnston; "The Clinical Importance of the Position of the Stomach," Dr. H. W. Bettman; "Two Interesting Breast Cases," Dr. Albert Freiberg. Several others were down for papers, but were not present. Dr. J. A. Thompson of this city was re-elected secretary of the society for the ensuing year.

Societies.

The following meetings are noted:

California.—Southern California Medical Society, Santa Barbara, May 4.

Georgia.—Floyd County Medical Society, Rome, May 4.

Illinois.—Chicago Medical Society, May 11; Chicago Pathological Society, May 9; McLean County Medical Society, Bloomington, May 5; Vermilion County Medical Society, Danville, May 10; Warren County Medical Association, Monmouth, May 6.

Indiana.—Tippecanoe County Medical Society, Lafayette, May 2; Vigo County Medical Society, Terre Haute, May 5; White River District Medical Society, Washington, May 10.

Iowa.—Boone Valley Medical Society, Eagle Grove, May 3; Polk County Medical Society, Des Moines, May 3; Wapello County Medical Society, Ottumwa, May 13.

Kansas.—Montgomery County Medical Society, Caney, April 29.

Maine.—Academy of Medicine and Science, Lewiston, May 9.

Maryland.—Baltimore County Medical Association, Baltimore, May 4.

Massachusetts.—Connecticut River Medical Association, Bellows Falls, May 3; Suffolk District Medical Society, Boston, April 30.

Michigan.—Barry and Eaton Medical Society, Nashville, May 5.

Minnesota.—Minnesota Valley Medical Association, Mankato, May 10.

Missouri.—Central District Medical Society, Sedalia, May 5; Jasper County Medical Society, Joplin, May 3; St. Louis Medical Society of Missouri, May 14; Southeast Missouri Medical Association, Cape Girardeau, May 3.

New Jersey.—Camden Medico-Surgical Society, Camden, May 2; District Medical Society of Camden, May 10.

New York.—Albany County Medical Society, Albany, May 10; Cayuga County Medical Society, Auburn, May 12; Erie County Medical Society, Buffalo, May 11; Madison County Medical Society, Oneida, May 10; Medical Society of Newburg Bay, Newburg, May 10; Medical Society of Saratoga Springs, April 29; Onondago County Medical Society, Syracuse, May 10; Orange County Medical Society, Goshen, May 3; Steuben County Medical Society, Hornellsville, May 10; Union Medical Society, Troy, April 28.

Ohio.—Cuyahoga County Medical Society, May 12; Lucas County Medical Society, Toledo, May 6; Miami Valley Medical Society, Loveland, May 3; Ohio State Pediatric Society, Columbus, May 3.

Pennsylvania.—Bucks County Medical Society, Doylestown, May 4; Lycoming County Medical Society, Williamsport, May 3; Perry County Medical Society, Buncannon, May 5; Schuylkill County Medical Society, Pottsville, May 3; Susquehanna Medical Society, May 3; Washington County Medical Society, Washington, May 11; Westmoreland Medical Association, Mt. Pleasant, May 3; York County Medical Society, York City, May 5.

South Carolina.—Association of Colored Physicians, Orangeburg, April 27.

Tennessee.—Marshall County Medical Society, Lewisburg, April 28.

CHANGE OF ADDRESS.

Anderson, J. A., from 348 Winchester Av. to 8042 Edwards Av., Chicago.
Black, J. F., from Cleveland, Ohio, to Springfield, Mass.
Burns, E. J., from Galveston to Giddings, Texas.
Colle, J. A., from Chicago, Ill., to Williams Bay, Wis.
Cook, C. D., from 133 Pacific St. to 162 Remsen St., Brooklyn, N. Y.
Carson, C. J., from Chicago to Mortimer, Ill.
Downey, W. S., from 4803 Union Av. to 925 W. 56th St., Chicago.
Doane, P. P. S., from 1723 Belmont Av. to 385 N. State St., Chicago.
Davis, H. I., from 2962 Wabash Av. to 3120 Indiana Ave., Chicago.
Dryden, Mary V., from 489 Ogden Av. to 1926 Wabash Av., Chicago.
De France, C. C., from 328 E. 5th St. to 415 Des Moines St., Des Moines.
Emmons, J. W., from Sparta to Oregon, Wis.
Fehr, H., from Chicago to 301 9th St., Milwaukee, Wis.
Goodhue, W. J., from 393 Ogden Av. to 267 Honore St., Chicago.
Gallen, G. E., from Chicago, Ill., to Calumet, Mich.
Hisom, H. M. T., from 756 Jackson Boul. to 718½ Adams St., Chicago.
Hogue, R. R., from Chicago, Ill., to Sparta, Wis.
Hindman, A. O., from Pittsburg, to Crossereek Village, Pa.
Jordan, A., from Richmond, Va., to Gaines Mill, Va.
Jones, E. A., from Louisville, Ky., to Baltic, S. Dak.
Jones, H. G. from Chicago, Ill., to 2d Reg. O. V. I. Hospital Corps, Columbus, Ohio.
Kirkland, B. F., from Chicago, Ill., to Mt. Auburn, Iowa.
Kohler, A. E., from Chicago, Ill., to Muncie, Ind.
Miller, R. E., from 291 31st to 5858 State St. Chicago.
Martin, Wm., from 324 Blue Island Av. to 422 W. 12th St., Chicago.
McManes, M., from Chicago, Ill., to Celina, Ohio.
Mitchell, G. D., from 1840 N. Clark St. to 7033 Parnell Av., Chicago.
Mathewson, E. H., from Battle Creek, Mich., to Keene, Texas.
Nash, G. W., from 804 Illinois to 712 South Illinois St., Indianapolis.
Nagel, J. S., from 240 Honore to 558 W. 79th St., Chicago.
Nichols, C. L., from Chicago, Ill., to 1923 Wirt St., Omaha, Neb.
Oren, S. A., from Laporte City, Iowa, to Lanark, Ill.
Proctor, C. M., from White Sulphur Springs, Mont., to Shenandoah, Ia.
Quincy, M. A., from Memphis to Ashland, Neb.
Rietz, P. C., from Chicago, Ill., to Manitowoc, Wis.
Reid, W. J., from 244 Alfred to 914 18th St., Detroit, Mich.
Robb, R., from Keokuk to Littleton, Iowa.
Redman, L. H., Alpha to Scipio, Ind.
Rich, F. D., from Terre Haute, Ind., to 330 Erie St., Toledo, Ohio.
Shoemaker, S. A., from Indianapolis to Reiffsburg, Ind.
Smith, H. S., from 592 6th St. to 1184 Vinewood Av., Detroit, Mich.
Tomlinson, J. P., from Atlanta, Ga., to Lake Butler, Fla.
Tenney, J. T., from Chicago, Ill., to Wabasha, Minn.
Williams, E. C., from Chicago, to Bloomington, Ill.
Yaw, S. B., from New York, N. Y., to Avalon, Ga.
Zimmerman, W., from Milwaukee to Menasha, Wis.

LETTERS RECEIVED.

Atkinson, Wm. B., Philadelphia, Pa.; Angear, J. J. M., Chicago; Adkinson, L. G., New Orleans, La.
Barton, Miss Harriet C., New Orleans, La.; Bulkley, L. Duncan, New York; Davis, J. C., Rochester, N. Y.
Cannaday Chas. G., Roanoke, Va.; Chapman, W. S., Gulch, Colo.; Canadian Journal of Medicine and Surgery, Toronto, Canada; Crothers, T. D., Hartford, Conn.; Cullen, G. I, Cincinnati, Ohio.
Edmonds, O. R., Tina, Mo.; Elliott, H. G. (2), New York; Eidman, M. St. Louis Mo.
Fessenden Mfg. Co., Pittsburg, Pa.; Frank, G. D., Elizabethtown, Ky. Gildea, P. F., Colorado Springs, Colo.; Gibson, Robert, Watford, Ont.; Gould, Geo. M., Philadelphia, Pa.; Gillette, Wm. J., Toledo, Ohio; Gifford, H., Omaha, Neb.; Griffith, J. P. Crozier, Philadelphia, Pa.; Graham, J. W. (2), Denver, Colo.
Hodges, Fred J., Anderson, Ind.; Harry, G. W., Spartanbury, S. C. Inland Printer Co., Chicago.
James, R. L., Blue Island, Ill.; Johns Mfg. Co., H. W., New York.
Ketcham, C. L., Cincinnati, Ohio; Kiernan, Jas. G., Chicago; Kline W. T., Minneapolis, Minn.
La Fave, Abe, Manitowish, Wis.; Lucast, T., Milwaukee, Wis.; Loeb, H. W., St Louis, Mo.; Macdowell, W. F., New York; McDonald, Arthur, Washington, D. C.; McGillicuddy, T. J., New York; McSwain, I. A., Paris, Tenn.; McClelland, C. B., Champaign, Ill.; Mudd, H. H., St. Louis, Mo.; Merrick, M. B., Passaic, N. J.; McDougall, Chas. S., Hixon, Ohio; Musser, J. H., Philadelphia, Pa.
Newell & Heldman, Chicago.
Patrick, H. T., Chicago; Patton, E. E., New Kensington, Pa.; Pegram, E. C., Duncan, Miss.
Reynolds, Dudley S., Lousisville, Ky.; Reynolds, Arthur R., Chicago; Reed, R. Harvey, Rock Springs, Wyo.; The Geo. P. Rowell Adv. Co., New York; Remelin, R. H., Cincinnati, Ohio; Rosenthal, Edwin (3) Philadelphia, Pa.
Solly, S. Edwin, Colorado Springs, Colo.; Smith, Chas. F., Des Moines, Iowa; Stearns, T. & Co., Detroit, Mich.; Smith, E. B., Detroit, Mich.; Schoff, C. H., Media, Pa.; Shields, W. J., New Wilmington, Pa.; Shoemaker, Jno, B. (2), Philadelphia, Pa.; Smart, C. A., Washington, D. C.; Stuver, E., Rawlins, Wyo.; Stallman & Fulton (2), New York.
Talbot, Eugene S., Chicago.
Upham, J. H. J., Columbus, Ohio.
Vance, A. J. (2), Harrison, Ark.
Waxham, F. E., Denver, Colo.; White, Jr., D. S., Atlantic City, N. J.; Wheeler, Chas. Le Roy, Scranton, Pa.; Walker-Gordon Laboratory Co., Chicago; Washburn, W. H., Milwaukee, Wis.; Wood, T. F., Angola, Ind.; West, S. L., Philadelphia, Pa.; Woolsey, Geo. (2), New York.
Yates Blinn, Buffalo, N. Y.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from May 7 to May 13, 1898.

Acting Asst. Surgeons Llewellyn P. Williamson, Francis Metcalfe and Randolph M. Myers, U. S. A., will proceed from Washington, D. C., to New York City and report in person to Major George H. Torney, Surgeon, in charge of Hospital Ship, for duty.

Acting Asst. Surgeons Edwin W. Patterson and Edgar A. Vander Veer, U. S. A., will proceed from Washington, D. C., to Atlanta, Ga., and report in person for duty, to Major Blair D. Taylor, in charge of the General Hospital, Fort McPherson, Ga.

Acting Asst. Surgeon F. A. E. Disney, U. S. A., will proceed from Washington, D. C., to Ft. Jefferson, Fla., and report to the commanding officer of that post for duty.

Acting Asst. Surgeon Wilfrid Turnbull, U. S. A., will proceed from Washington, D. C., to Key West, Fla., and report in person for duty to the commanding officer, Company E, Battalion of Engineers, at that place.

Acting Asst. Surgeon G. M. De La Torre, U. S. A., is assigned to duty with the 10th Infantry, Tampa, Fla.

Acting Asst. Surgeon, W. P. Lawrence, U. S. A., is assigned to duty with Light Battery B, 4th Artillery, Port Tampa, Fla.

Acting Asst. Surgeon Edward T. Gibson, U. S. Army, now at Minneapolis, Minn., will proceed without delay to Fort Yates, N. D., and report to the commanding officer of that post for duty.

A contract having been make with Dr. Carroll E. Edson of Denver, Colo., for duty as Acting Asst. Surgeon at Ft. Logan, Colo., he will proceed to that post and report to the commanding officer for duty.

Capt. William C. Borden, Asst. Surgeon, is relieved from duty with the 3d Infantry in camp near Mobile, Ala., and will report in person to Major William R. Hall, Surgeon, for duty at the General Hospital, Key West, Fla.

Acting Asst. Surgeon H. P. Jackson, U. S. A., will proceed from Charleston, S. C., to Key West, Fla., and report in person to Major William R. Hall, Surgeon, in charge of General Hospital, at that place for duty.

Acting Asst. Surgeon Charles K. Cutter, U. S. A., now on duty at Boston, Mass., is assigned to duty as assistant to the attending surgeon and examiner of recruits in that city.

Major Edward T. Comegys, Surgeon, is relieved from duty at Ft. Sill, O. T., and will report in person to Major General John R. Brooke, U. S. A., commanding provisional corps, Camp George H. Thomas, Chickamauga National Park, Georgia, for assignment to duty as acting medical purveyor for the supply of troops stationed at that point.

Acting Asst. Surgeon Frederick S. Dewey, U. S. A., will proceed from Oklahoma City, O. T., to Ft. Sill, O. T., and report in person to the commanding officer at that post for duty.